



Draft Perth and Peel Green Growth Plan for 3.5 Million

Submission by the South West Group

May 2016

SOUTH WEST GROUP

The South West Group, formed in November 1983, is a Voluntary Regional Organisation of Councils (VROC) comprising the Cities of Cockburn, Fremantle, Kwinana, Melville, and Rockingham and the Town of East Fremantle. The South West Group is managed by a Board consisting of the Mayors and CEOs of its member Local Governments.

The South West Group's vision is for the "South West Metropolitan Region – the economic gateway to the west". The South West Group will collaborate to maximise the quality of life within the region by influencing and informing future planning and infrastructure delivery.

The draft Perth and Peel Green Growth Plan for 3.5 Million released in December 2015 will have major implications, both benefits and potential impacts, for the planning and development of the South West Metropolitan Region.

The South West Group undertook a comprehensive biodiversity conservation mapping exercise in 2014 in a partnership project with the Western Australian Local Government Association (WALGA) Local Biodiversity Program team.

The "Towards Establishing a Green Network" plan completed in September 2014 identified 161 Areas of Priority Conservation Action (APCAs), which correspond to the highest biodiversity conservation value areas in the South West Metropolitan Region, and included vegetation connectivity modelling that assisted in the identification of regional and local ecological linkages.

This sub-regional scale biodiversity conservation information and mapping data for the South West Metropolitan Region was provided to the Strategic Assessment of Perth and Peel (SAPPR) team to assist in the assessment process.

The South West Group submission identifies “Strategic Issues” from a regional perspective and puts forward “Recommended Responses” to address these issues.

The Recommended Responses relate mainly to the funding and implementation of the Strategic Conservation Plan and associated Action Plans, as these aspects are not addressed to any detail in the plans produced to date associated with the draft Perth and Peel Green Growth Plan for 3.5 Million.

The South West Group submission also assessed the extent to which the Strategic Conservation Plan aligns with this sub-regional scale biodiversity conservation mapping work undertaken for the South West Metropolitan Region.

OVERVIEW

The draft Perth and Peel Green Growth Plan for 3.5 Million is an outcome of the *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* Strategic Assessment of the Perth and Peel Regions. The strategic assessment is based on the Western Australian Planning Commission (WAPC) draft Sub-regional Planning Frameworks for a population of 3.5 million people in Perth and Peel by 2050 released in May 2015.

The strategic assessment involved the evaluation of the preferred footprint of development to accommodate a population of 3.5 million against Matters of National Environmental Significance (MNES) listed under the EPBC Act and protected species and communities listed under the State’s *Wildlife Conservation Act 1956*.

The Environmental Protection Authority’s (EPA) Interim Strategic Advice on *Perth and Peel @3.5 million: Environmental impacts, risks and remedies* was released in August 2015 and contains recommendations which are meant to inform the finalisation of the planning frameworks and address the environmental impacts of growth to 3.5 million people.

The objective of the Perth and Peel Green Growth Plan for 3.5 Million is to secure approval under Part 10 of the Commonwealth EPBC Act and deliver streamlined approvals processes under the State *Environmental Protection Act 1986* for the following “classes of action”:

- Urban and industrial development
- Rural residential development
- Infrastructure development
- Basic raw materials extraction; and
- Harvesting of pine plantations

The Strategic Conservation Plan, supported by a State Impact Assessment Report and a Commonwealth Impact Assessment Report, incorporates a series of Action Plans for the classes of action and other issues including:

- Commonwealth Conservation Commitments
- State Environmental Objectives and Commitments
- Conservation Program
- Assurance

These documents are purported to be the most comprehensive environmental assessment ever undertaken for the future development of the Perth and Peel Regions out to 2047 based on a consolidated growth pattern with 47% infill targets.

STRATEGIC CONSERVATION PLAN

The Strategic Conservation Plan seeks to establish both long-term certainty for conservation outcomes and development in the Perth and Peel regions.

It was developed to provide for the growth of the city to a population of 3.5 million while protecting Perth and Peel's unique biodiversity and environmental systems. This plan forms one part of a strategic assessment process that builds on extensive planning and policy work undertaken across State Government agencies.

The Strategic Conservation Plan seeks to provide certainty around the classes of action required to support the growing population of 2.1 million currently in the Perth and Peel Region to 3.5 million around 2050.

Over 70% of native vegetation on the Swan Coastal Plain has been cleared to accommodate the current population, with the Perth and Peel Green Growth Plan for 3.5 Million proposing less than a further 4% of native vegetation on the coastal plain and Darling Range requiring clearing to accommodate the additional 1.4 million people.

This is intended to be achieved through the adoption of a consolidated urban development scenario to guide built form and avoidance or minimisation of further vegetation clearing.

170,000 hectares of new and expanded conservation reserves are proposed by extending existing and creating new conservation areas (80,000 ha – Phase 1), including Bush Forever sites. The remaining 90,000 hectares of conservation area will be selected from an area of 130,000 hectares to be negotiated as part of Phase 2, including priority areas for acquisition.

Strategic Issue 1

Spatial information identifying the new and expanded conservation reserve system was released in late March 2016, however it is not in a format that enables proper assessments using Local Government Geographic Information Systems (GIS). In addition, there is limited detail and only low resolution data for the conservation commitments mapping (specific and broad) where high resolution and detailed mapping is required.

Required Response

That the Green Growth Plan spatial mapping data be provided to Local Government in an appropriate format that is able to integrate with existing Geographic Information System (GIS) platforms, including the provision of high resolution conservation commitments mapping (specific and broad) data.

In terms of GIS data management for Local Government, an option could be for the Western Australian Local Government Association (WALGA) to be a central portal and distribution centre for the Green Growth Plan spatial mapping data as part of their Environmental Planning Tool (EPT) capability offered to Local Government and other stakeholders.

Under this arrangement, WALGA could communicate regular updates and provide new spatial datasets associated with the Green Growth Plan to Local Government and other stakeholders as it becomes available.

Consultation with WALGA and affected Local Governments in the assessment area is required to determine the most appropriate format of the spatial information and arrangements for future access and provision of mapping updates.

An assessment of the Strategic Conservation Plan and relevant Action Plans against the South West Group's "Towards Establishing a Green Network" plan and biodiversity conservation mapping work concluded the following key findings:

- About half of native vegetation remaining in the South West Metropolitan Region will be formally protected through the proposed conservation reserve network. This includes potentially more than half of the remaining vegetation within the Cities of Fremantle, Cockburn, Kwinana and Rockingham, and more than two thirds of the remaining vegetation in the City of Melville.
- Over 1,100 hectares of native vegetation has been mapped as future urban, industrial, rural residential and future basic raw material resource within 21 Areas of Priority Conservation Actions (APCAs), affecting the ability to achieve local biodiversity conservation objectives for regionally threatened vegetation complexes.
- Further vegetation will be lost and conservation areas fragmented due to proposed infrastructure projects.
- Several regional and local ecological linkages will be compromised by the draft Green Growth Plan proposed development outlined in Action Plans.
- Several good opportunities of impact avoidance and further contributions to meeting the Commonwealth and State environmental commitments have been missed within the South West Metropolitan Region and require further negotiation to achieve improved biodiversity conservation outcomes.

The following recommendations summarise the findings of the detailed assessment of the draft Green Growth Plan implications on the feasibility of conservation actions recommended for 155 APCAs identified in the "Towards Establishing a Green Network" biodiversity mapping report prepared by the South West Group on behalf of the member Councils in the South West Metropolitan Region.

These recommendations will largely be addressed through negotiations prior to the development of the final Perth and Peel Green Growth Plan and are supported by the Strategic Issues and Required Responses 1 to 8 outlined in this submission.

- Support the draft proposal for the conservation reserve network as outlined in the draft Green Growth Plan Action Plan H, subject to clarifications and modifications regarding issues raised for specific APCA sites and listed in Appendix A.
- Following the clarification of the listed site specific issues, seek the formal protection for additional natural areas within the following APCAs:
 - C9 (Market Swamp) – City of Cockburn
 - C20 and C21 (Crown reserve R27057, Munster) – City of Cockburn
 - C22 (Acourt Road bushland in Banjup) – City of Cockburn
 - C23 (Fraser Road bushland in Banjup) – City of Cockburn
 - K10 (Henderson bushland) – City of Kwinana
 - K14 (portion of Leda bushland) – City of Kwinana
 - K23 (portion of BF270 in Anketell) – City of Kwinana and
 - R24 (foreshore reserves in Port Kennedy) – City of Rockingham
- Seek the review of proposed land use intensifications for selected natural areas within the following APCAs:

- C16 (portion of bushland adjoining Thomsons Lake reserve) – City of Cockburn
 - C32 (rural lands in southern Banjup) – City of Cockburn
 - K5 (bushland adjoining BF267 – Mandogalup Road bushland, Hope Valley) – City of Kwinana
 - K14 (new road reserves in Leda bushland) – City of Kwinana
 - K22 (bushland along Thomas Road in Hope Valley) – City of Kwinana
 - K28 (City of Kwinana reserves – Rifle Range) – City of Kwinana
 - R2 (Point Peron) – City of Rockingham
 - R13 (BF75 Churcher Swamp, Baldivis) – City of rockingham
 - R14 (BF277 in Karnup) – City of Rockingham
 - R17 (old railway reserve) – City of Rockingham
 - R22 (rural lands in Baldivis) – City of Rockingham
- Seek the development of guidelines for the transitional period until the criteria for selecting significant natural areas to be protected through land use planning processes within the ‘classes of actions’ are developed as specified in the PPGGP Action Plans A and B
 - Seek the development of guidance on criteria for establishing ecological linkages across Perth and Peel, in particular addressing the needs of terrestrial fauna and landscaping within high density developments and in areas where roads intersect conservation areas
 - Seek the review of recommended planning mechanisms (listed in Action Plans A and B) for retaining additional conservation significance natural areas to include ‘Environmental Conservation’ local reserve classification.
 - Refer to APCA specific recommendations (listed in Appendix A) to address potential impacts of future development within APCAs and the management of retained and protected natural areas.

The detailed report assessing the impacts of the draft Perth and Peel Growth Plan is provided in Attachment 1 of this submission.

There are a range of areas that directly impact on Local Government and require further development, consultation and negotiation to ensure that the proposed biodiversity conservation objectives and outcomes will be met.

Local Government will need to be actively engaged in the ongoing finalisation and implementation of the Strategic Conservation Plan, State Impact Assessment Report and associated Action Plans.

Strategic Issue 2

The governance and implementation of the Strategic Conservation Plan and supporting Action Plans will require a structured approach to engage and actively involve Local Government and other key stakeholders.

Required Response

That a Local Government Engagement and Partnership Structure be established by the State Government to inform and support Local Governments during the implementation of the Strategic Conservation Plan, State Impact Assessment Report and associated Action Plans.

STATE IMPACT ASSESSMENT REPORT

The State Impact Assessment Report (SIAR) documents the impacts of future development on species and ecosystems protected under State legislation and subject to the strategic assessment. The SIAR environmental review and impact assessment was prepared to assist the EPA in providing strategic advice to the Minister for the Environment on the planned future development footprint of Perth and Peel Region at 3.5 million

Avoidance is a key feature of the SIAR to be achieved through a range of measures including:

- 62% or 16,400 ha of conservation areas earmarked for potential future development avoided.
- 3,400 ha of potential urban development areas avoided. This includes the exclusion of East Keralup in favour of future urban expansion in Pinjar and Gnangara with an indicative further 2,200 ha of urban and industrial expansion avoided through the statutory planning process
- 13,000 ha of areas earmarked for basic raw materials (BRM) avoided
- 461 impact occurrences on Conservation Category Wetlands, with a further 125 impact occurrences avoided through statutory planning processes
- 5,752 ha of vegetation complexes <30% coverage avoided, with a further 2,094 ha avoided through the statutory planning process
- 92 Threatened Ecological Communities (TECs) avoided, with a further 24 TECs avoided through the statutory planning process
- 10 Threatened Flora (TF) species avoided, with 1 further TF species avoided through the statutory planning process

The SIAR estimates that 9,800 ha will be cleared within the proposed development footprints with associated impacts on flora and fauna, where commitments to mitigate impacts will be required.

Strategic Issue 3

The SIAR identifies estimates on planned and future avoidance areas, however there is no spatial information or justification to support the avoidance analysis and assumptions for future avoidance contained in the documentation released to date.

Required Response

That avoidance analysis, assumptions and justifications used to identify avoided areas be provided by the State Government and supported by spatial information. These important factors should be communicated to Local Government to assist in the understanding and rationale of avoidance measures and to ensure a consistent approach to future avoidance through the statutory planning process.

The SIAR further defines impacts, mitigation, management arrangements and outcome against EPA objectives across a range of factors including:

- Flora and vegetation
- Terrestrial and subterranean
- Hydrological processes and inland water environmental quality
- Air quality
- Human health and amenity (including heat island effects, climate change and role of green network and urban tree canopy)
- Marine environmental quality

The SIAR puts forward an environmental management framework to operate over the long term (30+ years) identifying issues such as:

- Governance and implementation, including State Government responsibilities
- Executive body reporting to a select group of Ministers
- Facilitation of partnerships with Local Government and other stakeholders to effectively deliver Strategic Conservation Plan;
- Assurance framework – monitoring and reporting framework with annual reporting and 5 year reviews of Action Plans

There are however a number of issues arising from the environmental management framework that require further clarification such as:

- How will monitoring of the implementation of commitment/actions be undertaken by the Executive Committee? Will this be delegated to Local Government, Department of Parks and Wildlife (DPaW) or will a separate government department be established?
- What will be used to ensure that commitments and actions are being carried out by decision makers? Will there be penalties for non-compliance?
- How will information for the annual report be gathered?

The Executive Committee appears to be the Department of Premier and Cabinet, which raises concerns over its independence and role as the State's responsible agency for the implementation and performance monitoring of the Perth and Peel Green Growth Plan for 3.5 Million.

Consideration should be given to the establishment of an independent agency with representation from key stakeholder and peak bodies to work with the State Government on monitoring, auditing and compliance reporting over the long term implementation of the SIAR.

As indicated above, the establishment of an engagement and formalised partnership structure with Local Government is required to support the environmental management, implementation and assurance framework proposed in the SIAR.

Annual monitoring and reporting, and the five-yearly review of the Strategic Conservation Plan will be key tools used to inform possible modifications to Action Plans.

COMMONWEALTH IMPACT ASSESSMENT REPORT

The Commonwealth Impact Assessment Report (CIAR) has been prepared to satisfy the requirements under Part 10 of the EPBC Act. The Perth and Peel region study area contains 91 species listed under the EPBC Act Matters of National Environmental Significance (MNES) register including threatened plants and animals, threatened ecological communities, wetlands, migratory shorebirds and heritage sites.

The methodology for the impact assessment was designed to specifically address the requirements of the EPBC Act and the Terms of Reference for the strategic assessment. To do this it aimed to provide:

- an understanding of the values of the Perth and Peel region for MNES;
- an understanding of the likely impacts to these values from each of the classes of action (as well as within a cumulative context);
- guidance about the appropriate avoidance, mitigation and offset measures; and

- clarity about the long term outcomes of the Strategic Conservation Plan.

The CIAR considered both direct and indirect impacts on MNES and followed a process of avoidance similar to the SIAR.

The expansion of the conservation reserve system a further 80,000 ha in Phase 1 and additional 90,000 ha in Phase 2 is a major management measure proposed to address the impacts identified in the CIAR and SIAR.

Impacts on threatened fauna, particularly in relation to Carnaby's cockatoo, formed a major focus of the CIAR, together with impacts on threatened flora, threatened ecological communities, Ramsar wetlands (including Becher Point and Thomsons Lake) and migratory shorebirds.

The CIAR was underpinned by the principles of ecologically sustainable development (ESD) and their delivery through the Directions 2031 and Beyond and Perth and Peel@3.5million, the Strategic Assessment of Perth and Peel Regions (SAPPR) and the ongoing approval process for classes of action established under the Strategic Conservation Plan.

Some of the areas of uncertainty identified in the CIAR include:

- nature and scale of indirect impacts understanding the outcomes from offsets
- assessing the impacts of proposed infrastructure
- potential discovery of unknown occurrences of MNES
- long term influences of climate change
- funding mechanisms
- rationale for selected and avoided areas for conservation and development

The documents state funding mechanisms for implementation of the Strategic Conservation Plan and Action Plans are 'being developed' but are likely to include contributions from proponents applied through the approval processes. The documents also mention there may need to be legislative changes to enable the Plan to be implemented, which conflicts with the planned 'immediate' roll out of the Phase 1 conservation reserves system.

Further clarity on the timing and scope of proposed funding mechanisms and legislative changes is required in order to provide greater certainty to Local Government, landowners and the development industry.

The amount of new and expanded conservation reserves to be created requires further explanation as many of the areas identified are currently being managed for conservation purposes by State Government agencies or Local Government. Simply designating areas as conservation that are already being managed for conservation purposes may not translate into "additional" reserves, particularly if such a designation is not supported by additional funding and resources for reserve management.

Based on this rationale, it may be interpreted misleading to state that 170,000 hectares will be added to the conservation estate when many areas identified in the plans are actually already being managed for conservation by Local Government.

In addition, it is considered that the CIAR and expanded conservation reserve system has not gone far enough in protecting Bush Forever sites, which have already been identified by the State Government as the most important areas for biodiversity conservation in the metropolitan area.

Many of the Bush Forever sites are in State Government ownership or processes are in place to acquire land that is not. These should be a priority for inclusion in the expanded conservation reserve system.

The expanded conservation reserves system will require additional funding for protection and management. The Department of Parks and Wildlife (DPaW) has experienced massive budget cuts by successive State Governments and is now only able to undertake basic management activities in most Regional Parks and Conservation Reserves throughout the region.

A significant boost of funding for DPaW, Local Government and other land managers to implement the required management activities to maintain biodiversity conservation values identified in the strategic assessment is needed. This funding needs to be provided through increased allocations from consolidated revenue, grants and other funding mechanisms development to implement the CIAR, SIAR and Action Plans.

ACTION PLANS

Action Plan A: Urban and Industrial Development

Action Plan A assesses the impacts of Urban and Industrial development as a Class of Action and outlines management measures to assist in the implementation of the Strategic Conservation Plan based on the WAPC draft Sub-regional Planning Frameworks released in May 2015.

The impact assessment incorporates the components of the avoidance approach and the expanded conservation reserve system identified in the Strategic Conservation Plan based on a connected city development scenario with 47% infill development. Under the connected city development scenario, the Perth and Peel regions will be best placed to:

- accommodate significant population growth while limiting urban sprawl
- ensure the regions' environmental assets are protected
- increase housing diversity and affordability
- reduce car dependency
- achieve efficient use of water sources in a drying climate; and
- maintain liveability.

The proposed urban development footprint for a population of 3.5 million, based on a connected city across Perth and Peel, has avoided 4,000 ha of land with environmental values and it is expected that a further 2,300 ha will be avoided through the structure planning, subdivision and conservation planning process.

The industrial development expansion footprint seeks to avoid 1,000 ha of land with environmental values and a further 744 ha of land that will require further avoidance, mitigation or offsetting through the structure planning, subdivision and conservation planning processes. In addition, almost 1,000 ha of wetland and waterway buffers are expected to be avoided.

The Urban Development Action Plan includes existing urban land and buildings, redevelopment of existing urban areas and new urban areas, as well as associated infrastructure and services not included in Action Plan C: Infrastructure Development.

The 3.5 million population dwelling footprint breakdown of around 800,000 new dwellings includes:

- Infill 47% (377,105 dwellings)
- Urban Expansion 17% (131,691 dwellings)
- Undeveloped Urban 36% (283,749 dwellings)

In terms of industrial land, there is a need for an additional 10,597 ha in Perth Region and 2,893 ha in Peel region based on modelling undertaken for Department of Planning's Economic and Employment Lands Strategy (2012), of which the greatest proportion (3,827 ha or 36% of that required for the Perth Region) planned to be met by the South West Sub-region (Cities of Cockburn, Kwinana and Rockingham).

The implementation of the urban and industrial development targets and protection measures will be based on the Strategic Conservation Plan outcomes and objectives and undertaken through the planning process using existing legislation such as the Planning and Development Act 2005, Local Planning Schemes, Environmental Protection Act 1986 and other laws.

There is an assumption that Local Government is equipped to manage decision reviews and enforcement of environmental objectives sought by the Strategic Conservation Plan and Action Plans. For some Local Governments, this review and regulatory role may create capability and resource challenges requiring the relevant State agencies to commit to matters such as active involvement in the planning and development environmental assessment process and in preparing Applications for Review to the State Administration Tribunal (SAT).

Any review of Local Government decisions will only relate to development applications. For subdivision and structure plans, the approving agency will be the Western Australian Planning Commission (WAPC) and there is an expectation that the cooperation of other State agencies will be provided to deal with planning assessments and matters referred to the SAT.

Further clarification on the role of the State agencies and commitments for active participation in dealing with issues arising from the implementation of the Strategic Conservation Plan, SIAR and Action Plans is required. This should be in the form of a management agreement that commits resources and agrees to cooperate.

Given the expanded role and critical requirement for active Local Government involvement in the SIAR and Action Plans, the establishment of a specific Local Government engagement and partnership arrangement is required.

Strategic Issue 4

The implementation of Action Plan A: Urban and Industrial Development will require an active and expanded role for Local Government across a range of processes including planning and development approvals, land acquisition and management, negotiating outcomes that meet Strategic Conservation Plan outcomes and objectives and associated commitments.

Required Response

That a Local Government Engagement and Partnership Structure be established by the State Government to inform and support Local Governments during the implementation of the Strategic Conservation Plan, State Impact Assessment Report and associated Action Plans.

Environmental commitments specific to urban and industrial land development are proposed be met through:

- Elevating nominally protected sites – for crown land by nominating “conservation” as main purpose and issuing management order and/or adopting management plan
- Using planning processes – through strategic, spatial and/or statutory planning and development approval process
- Acquisition – under the MRS, Bush Forever and/or private land

In order to embed the outcomes of the Strategic Conservation Plan into the planning system, it is intended to implement planning process modifications and improvements and undertake a number of legislative changes (which are not detailed) including:

- Pre-lodgement assistance to clarify and respond to issues – to ensure environmental considerations can be clarified prior to preparation of plans
- GIS database – to aggregate and spatially identify environmental attributes of Commonwealth and state importance
- Standardised and streamlined referral process under the EP Act – to fast track approvals under both planning and environmental legislation and only apply class of action not prescribed.

Transitional arrangements will also be required until the Strategic Conservation Plan is operational.

Strategic Issue 5

There is no information on the proposed legislative changes or the transitional arrangements that will be put in place and apply until the Strategic Conservation Plan is operational.

Required Response

That the transitional arrangements proposed by the State Government be developed as a matter of urgency in consultation with Local Government to provide greater direction, certainty and clarity for Local Government in implementing SAPP conservation objectives, outcomes and commitments.

That further clarity is provided on planned legislative changes and that consultation is undertaken with Local Government to ensure that changes are appropriate and practical.

The funding mechanisms for implementation of the Strategic Conservation Plan and Action Plans are being developed.

Strategic Issue 6

The funding arrangements for the implementation of the Strategic Conservation Plan and Action Plans are critical for Local Government and for the success of conservation outcomes. The lack of information on funding for implementation is a key omission in the Strategic Conservation Plan and Action Plans.

Required Response

That proposed funding arrangements for the implementation of the Strategic Conservation Plan and associated Action Plans be developed by the State Government, in consultation with Local Government, as a matter of urgency to provide greater direction, certainty and clarity for Local Government in implementing SAPP conservation objectives, outcomes and commitments.

Action Plan B: Rural Residential Development

Consistent with the principles espoused in State Planning Policy 2.5 and the Sub-regional frameworks, the State Government considers rural residential use as one that is in limited demand, places pressure on infrastructure and services and with the potential to adversely impact on areas with environmental attributes.

As such, future rural residential development is proposed to be provided by exception basis taking into account the protection of the biodiversity values and the minimisation of environmental and water management impacts.

The Rural Residential Class of Action will primarily be realised through local planning schemes using a combination of strategic and statutory processes. Existing undeveloped Rural Residential land (6,722 ha) and proposed (4,277 ha) indicated around 11,000 ha of land available for rural residential use.

The implementation of the Rural Residential Class of Action targets and protection measures will be based on the Strategic Conservation Plan outcomes and objectives and undertaken through the planning process using existing legislation such as the Planning and Development Act 2005, Local Planning Schemes, Environmental Protection Act 1986 and other laws.

There are similar approaches for meeting rural residential environmental commitments and proposed planning process modifications and improvements to that described above for urban and industrial development.

The Rural Residential Class of Action applies to both expansion areas (proposed and yet to be zoned) and zoned undeveloped areas.

The opportunities for the retention of land containing significant environmental values include ceding to the Crown and reserving for conservation purposes and a number of other planning controls.

Criteria will be developed to assist in the decision-making process and provide guidance to assist proponents in the land development process.

Strategic Issue 7

The development of criteria to assist Local Government and provide guidance to the land development proponents is important in providing clarity and certainty for future rural residential development.

Required Response

That the preparation of criteria for the development of rural residential land be undertaken by the State Government, in consultation with Local Government, as a matter of urgency to provide greater direction, certainty and clarity for Local Government and land development proponents in implementing SAPPR conservation objectives, outcomes and commitments.

Action Plan C: Infrastructure

This plan seeks to address the future construction and upgrade of transport (including heavy, freight and light rail and Primary Regional Roads and Other Regional Roads), electricity and water infrastructure to support a population of 3.5 million. Other services such as gas and telecommunications infrastructure have been excluded with further engagement with major gas and telecommunication providers to occur outside of the Strategic Assessment process.

The Infrastructure Class of Action was undertaken by the Infrastructure Agencies Working Group and includes scoping of issues related to co-location arrangements for shared infrastructure corridors and sites. Co-location of infrastructure offers a greater range of benefits and involves placing different types of compatible infrastructure in the same area or corridor including linear infrastructure corridors or site-based infrastructure such as water treatment plants and electricity sub-stations.

The providers responsible for the implementation and management of infrastructure include:

- Public Transport Authority (PTA) – heavy and light rail and bus infrastructure
- Main Roads WA – Primary Regional Roads (also known as red roads)
- Local Government Authorities – Other Regional Roads (also known as blue roads)
- Western Power – electricity infrastructure
- Water Corporation – major water service infrastructure

Avoidance of impacts on significant environmental values in infrastructure delivery is achieved through the planning phase, impact assessment phase and through ongoing avoidance during the implementation of the Strategic Conservation Plan.

The final location and alignment of infrastructure will be subject to a future process of refinement following detailed planning, design and ongoing review to further avoid and minimise impacts on environmental values.

Infrastructure projects “able to proceed” have been coloured green on the Infrastructure Class of Action maps, with amber infrastructure areas indicating projects “requiring investigation”.

Heavy rail (Thornlie line to Cockburn Central), light rail (MAX light rail Mirrabooka to Perth and Perth to QEII) and freight rail, public buses and major roads (Fremantle Rockingham Controlled Access Highway, Rowley Road Extension) are examples of transport projects considered in the plan.

Other Regional Roads are blue roads controlled and managed by Local Government that should attract regional through traffic (at least 50%) away from local roads. Other Regional Roads should meet a range of criteria related to their links, traffic volumes, adjacent land uses (e.g. commercial and intersection controls).

Western Power’s Powers Transition Network Development Plan and Long-term Development Plans set the strategic vision for electrical transmission infrastructure requirements over the next 25 years. The future expansion of the transmission network, new line routes, sub-stations and terminals were considered in meeting the demands for a population of 3.5 million based on timing and certainty.

Water infrastructure provided by Water Corporation is also guided by long-term plans such as Water Forever and includes a wide range of asset types such as water and wastewater treatment plants, pipelines, sewers, reservoirs, bore fields and water trunk and distributor mains. The total development area for this infrastructure is 2,500 ha of which approximately 30% is in the existing or already developed urban areas.

Each infrastructure agency has its own internal planning processes to review alignment and sites and evaluate alternatives based on numerous factors including cost, efficiency, servicing engineering, social, economic and environmental costs and benefits.

Documentation reporting on proposed infrastructure provision by the agencies is required to be submitted to the Executive body, who will provide guidance for infrastructure agencies for evaluating the consistency of the proposed infrastructure with the Strategic Conservation Plan including avoidance, mitigation and offset measures for impacts on MNES or State environmental values.

Those infrastructure projects identified as “able to proceed” and would not require referral to the EPA but may require a clearing permit if not already covered by a purpose permit. For infrastructure projects identified as “requiring investigation”, the infrastructure agency is required to a request and supporting documentation for review and approval by Executive body or Cabinet.

The Action Plan states that the representation of infrastructure projects as either green (able to proceed) or amber (requiring investigation) will appear in future versions of this Action Plan. Given that the purpose of the Green Growth Plan was to provide greater certainty and to “cut red tape”, it is unfortunate that greater details and more accurate mapping information on infrastructure was not provided.

The implementation of Action Plan C is likely to have a significant impact on areas with potential conservation values and requires accurate quantification to facilitate decision making.

Although Action Plans A and B were accompanied by broad scale spatial mapping, there is no detailed mapping information available on infrastructure corridor alignments or site locations and therefore it is not possible to determine on-ground impacts associated with Action Plan C. In addition funding arrangements related to costs incurred by Local Governments for any adjustments to planned blue roads to meet Strategic Conservation Plan outcomes have yet to be defined.

As a result, Strategic Issues 1 and 6 and Required Responses identified above apply specifically to Action Plan C: Infrastructure given that there is very limited mapping prepared for this Action Plan.

Action Plan D: Basic Raw Materials Extraction

The Basic Raw Materials (BRM) Action Plan considers the cumulative impact of BRM including sand, limestone, clay and rock aggregate.

The Action Plan aims to facilitate the protection of significant areas planned for future resource extraction through avoidance (exclusion areas) of biodiversity rich locations and negotiated outcomes for areas where insufficient information currently exists (further investigation areas). Areas with minimal biodiversity constraints where future extraction is permitted have also been identified.

The process for the identification of these areas involved GIS based multi-criteria decision making to ensure the final BRM footprint took into account factors such as:

- biodiversity and other environmental values
- resource availability
- opportunities for sequential land use; and
- access (including transport costs).

It was clear that existing, planned and future BRM extraction sites were closely associated with high conservation areas of native vegetation and therefore requiring measures to maintain and protect biodiversity values, whilst providing access to required BRM resources.

The planning process identified areas with existing quarries operating under State and/or commonwealth approvals which are not included in the BRM Class of Action. The future resource extraction areas will allow up to 2,500 ha of native vegetation approval and up to 60 ha of impacts on wetlands, with approvals required through the usual statutory processes (vegetation clearing, works approvals etc.).

Most of the BRM sites in the South West Metropolitan Region correspond to areas identified as future resource extraction including Latitude 32 (limestone), Wellard (clay) and Baldivis (sand), however a number of areas in the Latitude 32 area have been identified as exclusion areas.

The approvals and ongoing management process for future BRM resource extraction and further investigation areas are varied according those undertaken on private land, where Department of Environment Regulation (DER) is the regulating authority, or crown land reserves where Department of Minerals and Petroleum (DMP) is the regulating authority.

Similarly with the Action Plans A, B and C, there is need to provide spatial data in an appropriate format for use in Local Government GIS platforms. There is also limited information on the rationale for identifying exclusion areas or further investigation areas, making it difficult to determine on-ground impacts associated with Action Plan D.

In addition funding arrangements related to compensation for landowners and quarry operators that may not be able to extract resources from exclusion areas to meet Strategic Conservation Plan outcomes have yet to be defined.

As a result, Strategic Issues 1 and 6 and Required Responses identified above also apply to Action Plan D: Basic Raw Materials.

Action Plan E: Pine Harvesting

The Pine Harvesting Class of Action relates to the Gnangara, Pinjar and Yanchep pine plantations situated over the Gnangara Mound and therefore do not directly impact on South West Metropolitan Region. The harvesting of pines is a major food source Carnaby's cockatoo, which is listed as a threatened species on the Commonwealth MNES and State legislation.

Some of the pine plantations will be harvested and used for other purposes such as urban and industrial development in the northern corridor, whilst others will be replaced with low water use vegetation to maximise groundwater recharge.

It is proposed that future pine plantings may not follow traditional plantation methods and be established over a wider area or in different arrangements to maximise Carnaby's cockatoo food sources. This may have implications for the rehabilitation of degraded land across the Perth and Peel Regions, particularly in relation to conditions of approval for activities such as BRM extraction as well as offsets for unavoidable vegetation clearing in the region.

It is stated in Action Plan E that no specific funding mechanisms are required as the harvesting of pines will be subject to contractual arrangements under State Agreements.

Action Plan F: Commonwealth Conservation Commitments

The Commonwealth Conservation Commitments are to be implemented through the development Action Plans A to E (where commitments relate to avoidance, mitigation in a development area) and the Conservation Program Action Plan H (where commitments relate to the protection and management of land).

Monitoring commitments are proposed to be met through the Assurance Action Plan I, although there is limited information on responsibilities and how inter-agency management arrangements will be determined.

The conservation outcomes for MNES are proposed to be achieved through the implementation of the Strategic Conservation Plan with particular reference to:

- Listed threatened species and ecological communities
- Listed migratory species
- Wetlands of international importance
- World and National Heritage places

The commitments include avoidance, mitigation, conservation, offsets or a combination of these measures for the MNES categories above, specific Classes of Action and particular species of high conservation significance.

Action Plan G: State Environmental Objectives and Commitments

Similar to the Commonwealth Conservation Commitments, the State Environmental objectives and commitments are to be implemented through the development Action Plans A to E (where commitments relate to avoidance, mitigation in a development area) and the Conservation Program Action Plan H (where commitments relate to the protection and management of land).

Monitoring commitments are proposed to be met through the Assurance Action Plan I to ensure these and the environmental objectives are being achieved. The environmental objectives and commitments are outlined in the SIAR and include:

- Flora and vegetation
- Terrestrial and subterranean
- Hydrological processes and inland water environmental quality
- Air quality
- Human health and amenity (including heat island effects, climate change and role of green network and urban tree canopy)
- Marine environmental quality

Action Plan H: Conservation Program

This Action Plan describes the Conservation Program that is proposed to be delivered under the Strategic Conservation Plan over the next 30 years. The Conservation Program is one of the mechanisms the Western Australian Government proposes to use to meet overall outcomes, objectives and commitments for MNES and State environmental values identified in the Strategic Assessment.

The Conservation Program comprises a range of actions to be implemented over the life of the Strategic Conservation Plan to:

- provide significant conservation gains within the Perth and Peel regions and surrounds; and
- offset residual impacts arising from planned development of the classes of action.

Actions include the expansion of the conservation reserve system, on ground management activities including rehabilitation and revegetation, measures to improve water quality and protect wetlands within the Perth and Peel regions, as well as actions to improve knowledge of State and Commonwealth environmental matters.

The Action Plan will be reviewed every five years and will be updated to reflect any changes while continuing to deliver the objectives and commitments set out in the Strategic Conservation Plan.

The Conservation Program also includes a range of actions to be implemented within and outside of the Strategic Assessment Area, that can be delivered at a landscape scale (such as the creation of National Parks), as well as at a local or site based scale (such as revegetation and rehabilitation). Actions under the Conservation Program propose to provide significant conservation gains throughout the Perth and Peel regions and surrounds, and offset residual impacts arising from the implementation of the classes of action through:

- expanding the conservation reserve system
- improving management arrangements for conservation reserves
- improving water quality and protecting wetlands within the Perth and Peel regions
- implementing targeted measures to support Carnaby's cockatoo; and
- improving knowledge of State and Commonwealth environmental matters.

The expansion of the conservation reserves system includes an initial package (Phase 1) of 80,000 ha. to be added to the conservation reserve system immediately following endorsement of the Strategic Conservation Plan by the Commonwealth Minister for the Environment. While the spatial mapping provides greater resolution than the plans included in the draft Green Growth Plan maps, it is clear that there are anomalies with some conservation areas shown in areas that have been approved for developed such as the large tracts of land at Jandakot Airport which have or will be cleared for the expansion of Jandakot City.

The Canning River Regional Park and Jandakot Regional Park are two conservation reserve expansion sites identified in the South West Metropolitan Region, noting that this represents a minor expansion or adjustments to tenure in the case of Jandakot Regional Park. The Beeliar and Rockingham Lakes Regional Parks conservation tenure arrangements will also be improved to provide long term security to conservation values, noting that much of the expanded areas were already being managed for conservation purposes and the changes proposed are mainly concerned with tenure and purpose, rather than the physical addition of conservation areas.

Most actual conservation reserve expansion sites, in terms of additional reserved land, appear to be located in other sub-regions in the study area or outside the metropolitan area. The rationale for this observation is not clear and requires explanation by the State Government.

A Coordinating group will be established to oversee the implementation of the Conservation program over the life of the Strategic Conservation Plan. The Coordinating group will report to the Executive body responsible for the implementation, review and revision of the action plans of the Strategic Conservation Plan

To meet the costs of implementing the Strategic Conservation Plan, including the Conservation Program, funding measures are likely to include contributions from proponents applied through the approval processes that apply to each class of action under Action Plans A to D.

As previously mentioned, the documents state that the funding mechanisms for implementation of the Strategic Conservation Plan and Action Plans are 'being developed' along with the legislative changes to enable the Plan to be implemented.

Further clarity on the timing and scope of proposed funding mechanisms and legislative changes is required in order to provide greater certainty to Local Government, landowners and the development industry.

Action Plan I: Assurance Plan

The Assurance Plan provides specific detail to reinforce the assurance framework in the Strategic Conservation Plan and is subject to approval by the Commonwealth Minister for the Environment.

The assurance framework comprises the following elements:

- monitoring and compliance program
- annual reporting
- five yearly review; and
- dispute resolution.

The monitoring and reporting program includes performance monitoring against the Strategic Conservation Plan and environmental condition monitoring across a range of factors regarding the MNES and State environmental values.

Compliance assurance reporting will be the responsibility of the Western Australian Government and based on a report to be developed within 12 months of Commonwealth endorsement of the Strategic Conservation Plan covering:

- regular compliance and enforcement
- non-compliance actions; and
- third party audits

Strategic Issue 8

Local Government may be responsible for issuing planning or development approvals with conditions related to implementing Strategic Conservation Plan or Action Plan commitments, objectives or outcomes.

Required Response

That the compliance assurance reporting framework make provision for a process for the inclusion of inputs from Local Government regarding development approval conditions that contribute toward achieving Strategic Conservation Plan and/or Action Plan commitments, objectives and outcomes.

An annual report assessing performance against the Strategic Conservation Plan and Action Plans F (Commonwealth Conservation Commitments), G (State Environmental Objectives and Commitments) and H (Conservation Program) will be published each year.

Five yearly reviews will be produced to review progress toward achieving outcomes, objectives and commitments of the Strategic Conservation Plan.

A Party claiming a Dispute has arisen under the Strategic Conservation Plan must give written notice to other Parties in the dispute setting out details of the Dispute. If a Dispute cannot be resolved through resolution between Parties at an officer level, any Party may refer the matter to the relevant Departmental Head or require mediation. If the parties fail to achieve a resolution, Parties may take such action as referring the matter to the respective Minister or commencing legal action.

A review of the Draft Perth and Peel Green Growth Plan against the recommendations for the South West Group's Areas of Priority Conservation Action and the greening networks

**SOUTH WEST
GROUP'S GREEN
NETWORK AND THE
DRAFT PERTH AND
PEEL GREEN
GROWTH PLAN
FOR 3.5 MILLION**

May 2016

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APPENDIX A: Summary of findings and recommendations specific to each Area of Priority Conservation Action

APPENDIX B: Criteria used to identify Draft Specific and Broad Commitments and Values in the PPGGP mapping

APPENDIX C: Statistical analysis

APPENDIX D: Figures – Perth and Peel Green Growth Plan mapping compared with Areas of Priority Conservation Action and ecological linkages identified in the Towards Establishing a Green Network (Local Biodiversity Program 2014).

Abbreviations

APCA – Areas of Priority Conservation Action (South West Group 2014 Towards Establishing a Green Network)

BF – Bush Forever Areas

BRM – Basic Raw Material

CCW – Conservation Category Wetlands

LPS – Local Planning Scheme

MRS – Metropolitan Region Scheme

PPGGP – Draft Perth and Peel Green Growth Plan for 3.5 Million

REW – Resource Enhancement Wetlands

SWSRPF - South West Sub-regional Planning Framework (2015)

EXECUTIVE SUMMARY

The purpose of this document is to present the results of an assessment of the implications of actions and land use changes proposed in the Draft Perth and Peel Green Growth Plan for 3.5 million (PPGGP) on the feasibility of environmental objectives outlined in the *Towards Establishing a Green Network* report developed in partnership with six South West Group member Local Governments and WALGA's Local Biodiversity Program.

The analysis of implications included an overlay of the proposed land use changes, including the location of proposed conservation reserves and new Urban, Rural Residential and Industrial zoning as well as the impact of utilising future resources of basic raw materials over the 155 Areas of Priority Conservation Action (APCAs) and the network of ecological linkages. The APCAs were identified to help with prioritising conservation efforts across the South West Group member Local Governments, identifying opportunities to protect a representative and adequate network of natural areas that are well connected. Ecological linkages were identified to reduce the impacts of habitat fragmentation.

The results of this analysis show that potentially more than half of the remaining vegetation within the Cities of Fremantle, Cockburn, Kwinana and Rockingham, and more than two thirds of the remaining vegetation in the City of Melville could be formally protected through the implementation of the PPGGP's proposed conservation reserve network. This will significantly improve the protection status of natural areas across the South West Metropolitan Region.

Additional opportunities to further increase the protection levels for significant natural areas to those proposed in the PPGGP's Action Plan H – Conservation Reserves were identified within five APCAs.

While most of the remaining native vegetation within the APCAs will not be affected by new Urban, Rural Residential or Industrial zoning or by mining for basic raw materials, a review of the proposed up-zoning is recommended for several localities. Changing the proposed higher intensity development zoning is recommended for several APCAs to avoid significant impacts or to facilitate better future management of retained natural areas.

In total, 1,055 hectares of native vegetation mapped within APCAs overlap with new proposed development areas of Urban, Rural Residential, Industrial zoning and basic raw material – future resource mapping. The affected APCAs are within the Cities of Cockburn, Kwinana and Rockingham.

Cottesloe Central and South, Karrakatta Central and South, Dardanup and Bassendean Central and South vegetation complexes are the most affected by the proposed up-zoning within APCAs. With less than 10% of the pre-European extent of

Karrakatta Central and South vegetation complex remaining in the Perth and Peel region, a review of future development proposals affecting this vegetation complex is recommended to avoid longer term adverse impacts. Additionally, the proposed new zoning over these vegetation complexes within the APCAs will affect the feasibility of vegetation complex specific conservation targets adopted by the City of Kwinana via its local biodiversity strategy.

Several new roads or road upgrades are proposed through high conservation value bushland including Henderson bushland (BF346), Point Peron bushland (BF355) and Leda bushland (BF349) which will be further affected by proposed transition lines that are not being co-located with the proposed roads. Feasibility of a regional ecological linkage using the Parks and Recreation reservation along the old railway reserve in the City of Rockingham will be compromised by the proposed integrator arterial road.

The future intensified development and new proposed roads will create permanent barriers to fauna movement within several sections of regional ecological linkages in the study area. Improved guidance for vegetation retention and fauna movement provisions are needed to prevent complete isolation of several conservation reserves in the study area.

The limitations of the PPGGP mapping data inhibited the assessment of potential impacts of future utilities infrastructure and higher density residential development on the feasibility of the South West Group's Towards Establishing a Green Network recommendations. This further supports the need for the development of clear criteria for maintaining and establishing functioning ecological linkages to complement, connect and build resilience for identified areas with high conservation values.

SUMMARY OF KEY FINDINGS

- About half of native vegetation remaining in the South West metropolitan region will be protected via the proposed conservation reserve network.
- Over 1,100 hectares of native vegetation has been mapped as future urban, industrial, rural residential and future basic raw material resource within 24 Areas of Priority Conservation Actions, affecting the ability to achieve local biodiversity conservation objectives for regionally threatened vegetation complexes.
- Further vegetation will be lost and conservation areas fragmented due to proposed infrastructure projects.
- Several regional and local ecological linkages will be compromised by the PPGGP proposed development.
- Several good opportunities of impact avoidance and further contributions to meeting the Commonwealth and State environmental commitments have been missed within the South West metropolitan region.

The following recommendations summarise the findings of the detailed assessment of PPGGP implications on the feasibility of conservation actions recommended for 155 APCAs identified in the six South West Metropolitan Region Local Governments:

- Support the draft proposal for the conservation reserve network as outlined in the PPGGP's Action Plan H, following the clarification of any issues raised for specific sites and listed in Appendix A.
- Following the clarification of the listed site specific issues, seek the formal protection for additional natural areas within APCAs C9 (Market Swamp), C20 and C21 (Crown reserve R27057, Munster), C22 (Acourt Road bushland in Banjup), C23 (Fraser Road bushland in Banjup), K10 (Henderson bushland), K14 (portion of Leda bushland), K23 (portion of BF270 in Anketell) and R24 (foreshore reserves in Port Kennedy).
- Seek the review of proposed land use intensifications for selected natural areas within APCAs C16 (portion of bushland adjoining Thomsons Lake reserve), C32 (rural lands in southern Banjup), K5 (bushland adjoining BF267 – Mandogalup Road bushland, Hope Valley), K14 (new road reserves in Leda bushland), K22 (bushland along Thomas Road in Hope Valley), K28 (City of Kwinana reserves – Rifle Range), R2 (Point Peron), R13 (BF75 Churcher Swamp, Baldivis), R14 (BF277 in Karnup), R17 (old railway reserve) and R22 (rural lands in Baldivis).
- Seek the development of guidelines for the transitional period until the criteria for selecting significant natural areas to be protected through land use planning processes within the 'classes of actions' are developed as specified in the PPGGP Action Plans A and B.
- Seek the development of guidance on criteria for establishing ecological linkages across Perth and Peel, in particular addressing the needs of terrestrial fauna and landscaping within high density developments and in areas where roads intersect conservation areas.
- Seek the review of recommended planning mechanisms (listed in Action Plans A and B) for retaining additional conservation significance natural areas to include 'Environmental Conservation' local reserve classification.
- Refer to APCA specific recommendations (listed in Appendix A) to address potential impacts of future development within APCAs and the management of retained and protected natural areas.

1 Background

In 2013-2014, the South West Group worked with WALGA's Local Biodiversity Program to assess the conservation values of natural areas retained across the six member Local Governments (representing the South West Metropolitan Region) and to identify priority areas for conservation action. The study involved an assessment of opportunities and constraints to the conservation of high environmental value natural areas, with an objective to retain and protect vegetation and wetlands representative of the full diversity of natural ecosystems in the study area. Identification of options for maintaining and improving connectivity between retained natural areas was another outcome of the study.

Key findings of this study, including site specific recommendations for 155 'Areas of Priority Conservation Actions' (APCA) are available in a report titled *Towards Establishing a Green Network – Vegetation connectivity modelling-Testing the effectiveness of a proposed green network for the South West Group member Local Governments* (Local Biodiversity Program 2014). The results of all mapping analysis can be viewed through WALGA's on-line mapping viewer, the Environmental Planning Tool, using a project specific login.

The *Towards Establishing a Green Network* report highlighted the importance of conserving natural areas within the South West Metropolitan Region to the maintenance of biodiversity in the Perth and Peel regions and at the Swan Coastal Plain. However, the protection level of some natural areas across the study area is below the minimal State Government adopted threshold of 10% of pre-clearing vegetation extent and further opportunities to improve the current protection status needed to be identified.

Opportunities to increase the formal protection of vegetation and wetlands were assessed considering the then current land use provisions of the Metropolitan Region Scheme, local planning schemes and the vested purposes of existing Crown reserves. Several types of instruments were identified to increase the long term protection status of identified high conservation value natural areas including:

- Changes to public reserve purposes to include conservation under the *Land Administration Act 1997*;
- Introduction of a local conservation type reservation into local planning schemes;
- Development and adoption of local planning policies to guide future subdivisions on lands with native vegetation and wetlands, minimising fragmentation and retention of the most ecologically viable vegetation within future Public Open Space or vegetation protection areas.

Native vegetation connectivity analysis included modelling of three scenarios of vegetation retention patterns across the South West Group study area. This modelling was used to demonstrate the effectiveness of the proposed network of

regional and local ecological linkages in improving the levels of connectivity between high conservation natural areas, those protected and those proposed to be protected. The regional and local ecological linkages identify a network of natural areas with vegetation, as well as lands providing good opportunities for vegetation restoration. The identified ecological linkages vary greatly in their capacity to facilitate movement of animals across the study area and beyond, with some potentially supporting the movement of ground-dwellers while others providing corridors for birds.

Finally, the *Towards Establishing a Green Network* report makes thirty recommendations on:

- local priorities for management of natural areas to build high priority ecological linkages
- ways to improve land use provisions in local planning schemes to facilitate protection and retention of high conservation value areas and ecological linkages, and
- ways to improve natural area management and stakeholder engagement in natural area conservation.

The Draft Perth and Peel Green Growth Plan for 3.5 million (PPGGP), released for public consultation in December 2015, seeks to identify ways to accommodate the anticipated population growth while providing for protection of flora, fauna, habitat and ecosystems listed under the Commonwealth and State environmental legislation. This strategic Government initiative provides an opportunity to improve the protection status of significant natural areas in the South West Metropolitan Region as well as affect the feasibility of ecological linkages identified through the *Towards Establishing a Green Network* study.

The South West Group engaged Nam Natura Consulting to assess implications of the draft PPGGP on the feasibility of actions recommended in the *Towards Establishing a Green Network* report.

2 Scope and objectives

The scope of this analysis was to:

- Assess the impacts of the 'classes of actions' as outlined in the Draft Perth and Peel Green Growth Plan for 3.5 million on actions recommended for the South West Group's 'Areas of Priority Conservation Action'.
- Assess the impacts of the 'classes of actions' as outlined in the Draft Perth and Peel Green Growth Plan for 3.5 million on the South West Group's green network, the regional and local ecological linkages.

- Assess how the Green Growth Plan's Strategic Conservation Plan will contribute to meeting the South West Group's environmental objectives.

3 Methodology

3.1 Data and documents used

Draft documents and mapping relating to the PPGGP and used in this analysis were sourced from Department of the Premier and Cabinet website

(<https://www.dpc.wa.gov.au/Consultation/StrategicAssessment/Pages/Draft-Green-Growth-Plan-documents.aspx>) and included the following:

- Strategic Conservation Plan
 - Action Plan A- Urban and Industrial
 - Action Plan B – Rural Residential
 - Action Plan C – Infrastructure, including Figures 9, 14, 20 and 24.
 - Action Plan D – Basic Raw materials
 - Action Plan F – Commonwealth Conservation Commitments
 - Action Plan G – State Environmental Objectives and Commitments
 - Action Plan H – Conservation Program.

Mapping data was accessed via on-line mapping viewers provided through the Department of Premier and Cabinet:

1. Mapping of 'classes of action', Conservation Reserves and Commonwealth and State environmental commitments:
<https://espatial.planning.wa.gov.au/mapviewer/Index.html?viewer=greengrowthplan>
2. Basic Raw Material mapping – provided by Department of Mines and Petroleum:
<http://warims.dmp.wa.gov.au/GeoView/Viewer.html?Viewer=GeoVIEW&layerTheme=Perth%20and%20Peel%20Green%20Growth%20Plan&extent=115.25%2c-33%2c116.45%2c-31.25>

Any terminology used in this reports and in the above listed documents is consistent with definitions provided by the above references.

3.2 Mapping and statistics

Due to the lack of PPGGP spatial data in formats allowing spatial analysis using suitable software, all mapping generated for this assessment was done by re-tracing PPGGP maps available via the above listed websites over the South West Group mapping of APCAs, as well as the regional and the local ecological linkages.

WALGA's Environmental Planning Tool was used to create the following mapping layers:

- Extent of Phase 1 and Phase 2 Conservation Reserves
- Extent of 'Existing conservation reserves'
- New Urban, Rural Residential, Industrial zoning within APCAs (identifying portions of APCAs that were at the time of preparing the *Towards Establishing a Green Network* report zoned or reserved other than Urban, Rural Residential or Industrial)
- Proposed infrastructure (roads)
- Conservation Category wetlands and Resource Enhancement wetlands within APCAs (and not included in the proposed Conservation Reserves)
- Portions of Bush Forever Areas not included in the proposed Conservation Reserves
- Basic Raw Material mapping: Exclusion Zones and Future Resource within APCAs
- Portions of vegetation within APCAs mapped as 'Specific Commitments' (see **Appendix B** for the list of environmental values included)
- Areas within APCAs requiring further investigations/clarifications of proposed mapping categories
- Areas within APCAs where recommendation is made in this document to seek a review of the proposed land use
- Portions of regional and local linkages that will be compromised due to proposed land use changes
- Proposed alternative local linkages.

These mapping layers were created using the annotation functions under the 'Project' heading in the Environmental Planning Tool. All mapping layers were saved as individually themed shape files and as a project file (SAPPR and APCAs.gpf). While the re-traced features are not the exact copy of the PPGGP mapping, they are a very close representation of the PPGGP mapping. This is due to the fact that cadastral boundaries or Metropolitan Region Scheme mapping were used as the main reference when re-tracing PPGGP mapping over the South West Group's APCAs and the ecological linkages.

All the mapping layers are available for viewing via the Environmental Planning Tool and in **Appendix D**.

The 'Selection' and 'Report' tools in the Environmental Planning Tool allow calculations of the extent of native vegetation or wetlands within mapped areas. Using these functions, an area of native vegetation within proposed Phase 1 and Phase 2 Conservation reserves or within any APCA potentially affected by proposed new Urban, Rural Residential or Industrial development was calculated.

For each of the 155 APCAs in the South West Metropolitan Region, notes were made on what portion of native vegetation is or might be protected, what portion of native vegetation might be affected by future newly proposed development and which portion of native vegetation is not affected by 'classes of action' or the

proposed conservation program (See **Appendix A**). Recommendations for future actions were made for each APCA.

Finally, the potential increase in the protection status of natural areas within each of the six South West Group member Local Governments was estimated by adding up native vegetation extent within the proposed Phase 1 Conservation Reserves to the extent of native vegetation already protected (identified in the PPGGP mapping as 'Existing conservation reserves'). To estimate the final potential protection level of native vegetation for each Local Government, 90% of native vegetation extent within Phase 2 Conservation Reserves was added to the already protected vegetation and vegetation within the Phase 1 Conservation reserves. The reason for reducing the portion of native vegetation protected during Phase 2 of the conservation plan is that areas mapped as Phase 2 Conservation Reserves identify areas where opportunities to protect the proposed additional 90,000 hectares of land will be sought. However, the total area mapped as Phase 2 Conservation in the draft PPGGP consists of 160,000 hectares.

It is important to note that areas mapped Phase 2 Conservation include road reserves with existing roads, cleared land or land with existing development. However, estimates of potential protection levels in this assessment consider native vegetation extent, not the extent of reserved land. Therefore, the proportion of vegetation included in the above calculations was reduced only by 10% (instead of 56% representing the 90,000 hectares to be reserved in the 160,000 hectares of mapped as Phase 2 Conservation).

The PPGGP Strategic Conservation Plan provides for additional protection of significant natural areas, above those areas mapped as Phase 1 or Phase 2 Conservation Reserves. Therefore the estimated protection levels for native vegetation in the South West Metropolitan Region is likely to increase further from the estimated figures presented in Table 1, **Appendix C**.

For each APCA, native vegetation affected by new Urban, Rural Residential, Industrial zoning and future mining for basic raw materials was classified according to vegetation complexes.

3.3 Limitations

The on-line PPGGP mapping does not include mapping layers shown in Figure 3 Proposed Infrastructure – Indicative locations and alignment (Action Plan C- Infrastructure). While more detailed roads (Figure 14) and railways (Figure 9) mapping allowed assessment of impacts in most instances, proposed location of other infrastructure was not always clear. Therefore it was not possible to assess the impact of proposed Western Power or Water Corporation utilities on the APCAs and the ecological linkages. As a consequence, the potential impacts of power and water utilities infrastructure were not included in the detailed analysis.

Urban development densities greatly affect the opportunities to establish green networks in urban landscapes.

The PPGGP mapping identifies Urban zoned land, however it does not show areas that will be re-developed at higher densities. Increased densities in residential areas could further reduce the feasibility of some ecological linkages identified in the *Towards Establishing a Green Network* report. However, there is also a scope to use the *Towards Establishing a Green Network* report to positively influence the design of any new higher density residential developments, facilitating the establishment of linkages within new Public Open Space or landscaped boulevards and streets.

4 Results and Discussion

4.1 Increased formal protection and missed opportunities for impact avoidance

Of the 155 Areas of Priority Conservation Action identified across six Local Governments in the South West Metropolitan Region, over one third include natural areas mapped by the PPGGP's Strategic Conservation Plan as part of the proposed conservation reserve network (see **Table 1**). The proposed conservation reserves include all but two Bush Forever Areas occurring in the study area and some additional lands. The largest area outside the Bush Forever Areas (as mapped in 2009) to be formally protected is Stakehill Swamp in the City of Rockingham.

Bush Forever Areas that are not identified as future conservation reserves are Bush Forever Area 435 (Market Garden Swamp, Spearwood/Munster) and Bush Forever Area 429 (Market Garden Swamp, Munster) in the City of Cockburn.

Several Bush Forever Areas are not included in the PPGGP's conservation reserve plan in their entirety, including:

- Bush Forever Areas 389 (Acourt Road Bushland, Banjup) and 390 (Fraser Road bushland, Banjup) in the City of Cockburn;
- Bush Forever Areas 349 (Leda bushland) and 346 (Henderson bushland) in the City of Kwinana and
- Bush Forever Area 355 (Point Peron bushland) in the City of Rockingham.

Bush Forever Areas 435 (Market Garden Swamp, City of Cockburn), 349 (Leda bushland, City of Kwinana), 346 (Henderson bushland, City of Cockburn) and 355 (Point Peron bushland, City of Rockingham) are also mapped as 'Specific Commitments' and Bush Forever Area 429 (Market Garden Swamp, City of Cockburn) is mapped as 'Broad Commitments and values' on the draft PPGGP mapping.

According to the PPGGP Strategic Conservation Plan, there will be an expectation that during the implementation of PPGGP these recognised commitments will be addressed through appropriate land use planning processes. However, it would appear that the exclusion of the above listed Bush Forever areas are missed opportunities to contribute to meeting the Commonwealth and State commitments defined in the Strategic Conservation Plan (Action Plan F and G). In the case of Point Peron, the 'Specific Commitments' mapping overlaps with proposed development footprints for the Urban class of action (Residential development and the proposed duplication of wastewater outfall), which will reduce the result in clearing of vegetation within an existing Crown reserve managed by the Department of Parks and Wildlife.

Table 1: Summary of findings of PPGGP implications on the APCAs across the South West Group member Local Governments.

Note: The total APCAs in columns listing specific implications is greater than the total APCAs mapped within a Local Government area. This is due to the fact that APCAs include lands within various land uses that are being affected by numerous factors proposed under the PPGGP.

Local Government	Total number of APCAs	Number of APCAs with lands in proposed Conservation Reserves (Elevated protection)	Number of APCAs with lands proposed for increased development (Urban, Industrial, Rural Residential)	Number of APCAs with lands not effected by proposed land use changes	Number of APCAs where changes to the PPGGP proposed land uses are recommended
City of Fremantle	9	2	0	7	0
Town of East Fremantle	9	1	0	9	0
City of Melville	31	11	0	20	0
City of Cockburn	33	15	4	12	3
City of Kwinana	40	15	8	21	4
City of Rockingham	33	12	12	12	3 + 1 outside APCA
Total	155	56	24	81	11

The estimates of native vegetation protection levels following the full implementation of the PPGGP's proposed conservation reserve network within the South West Metropolitan Region show that around half of the vegetation remaining in the Cities of Fremantle, Cockburn, Kwinana and Rockingham will be formally protected. In the City of Melville about two thirds of the remaining vegetation will be afforded formal protection (see **Appendix C**).

Further, this review identified at least six additional good opportunities to increase the conservation status of regionally significant natural areas in the study area and contribute to the environmental objectives of the PPGGP. Yet, that are excluded from the proposed conservation reserve network in the PPGGP.

Therefore, it is recommended that the PPGGP is amended to recognise the conservation values of native vegetation within APCAs C9 (includes BF435 in Spearwood/Munster), C20 and 21 (Crown reserve R27057, Munster, managed by the City of Cockburn for conservation), portions of C22 (portion of BF389 in Banjup), C23 (portion of BF390 in Banjup) in the City of Cockburn, K14 (portion of Leda bushland in Wellard) in the City of Kwinana and R2 (R30188 in Point Peron bushland) in the City of Rockingham by amending the current land use classifications and adding these areas into the proposed conservation reserve network. Justifications for this proposal are listed in **Appendix A** for each specific APCA.

4.2 Impacts of proposed changes to land use – intensification of development within Areas of Priority Conservation Action.

Over 590 hectares of native vegetation in the City of Rockingham, 282 hectares in the City of Kwinana and 250 hectares in the City of Cockburn within APCAs are within new proposed Urban, Rural Residential, Industrial areas and Basic raw material –future resource (**Appendix C**). In most instances, this remnant vegetation is also mapped in the PPGGP mapping as 'Specific Commitments' or 'Broad Commitments and Values (defined in **Appendix B**) and therefore it is expected that some of this vegetation will be retained and potentially protected through strengthened provisions in the local planning frameworks.

The Draft PPGGP's Action Plans A and B list recommended mechanisms for retaining additional natural areas of high conservation values within future residential and industrial subdivisions, primarily using the provisions for public open space recreation reserves. Ceding to the Crown or use of various development control mechanisms are proposed to protect vegetation within Rural Residential developments. However, the feasibility of the recommended action in some locations in the South West Metropolitan Region is questioned (see discussion further).

While the use of Public Open Space provisions in local planning schemes is supported to protect additional natural areas on lands zoned urban, it is recommended that such areas are classified as 'Environmental Conservation' local reserves. This will be consistent with the local planning scheme land use definitions listed in Schedule 3 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and will provide more transparency about the purpose of lands reserved through local planning schemes.

The *Towards Establishing a Green Network* report (Local Biodiversity Program 2014) will be essential to delivering future development in a timely fashion in areas where

proponents demonstrate that the new development within the South West Metropolitan Region facilitates vegetation retention and where possible its formal protection in accordance of the *Towards Establishing a Green Network* report. Use of this report to assess future development will be consistent with the proposed actions in the draft PGGP which recognise the relevance of local biodiversity strategies and similar conservation frameworks for identifying further opportunities to meet the Commonwealth and State environmental commitments (Action Plans F and G).

Consideration of the local priorities will be of particular relevance within those 21 APCAs where native vegetation could be affected by future new Urban, Rural Residential or Industrial development as identified in this assessment (**Appendix A**).

In some instances it is recommended that the proposed up-zoning is reviewed. For example, within APCA R22 (rural lands in East Baldy; Figure 1) in the City of Rockingham, about 44 hectares of vegetation representative of Dardanup vegetation complex is within lands proposed to be developed as Rural Residential (Figure 1).



Figure 1: Areas (red boundary) where the proposed land use change will affect the long term viability of the remaining vegetation of recognised conservation values.

Some of this vegetation, representative of a regionally threatened vegetation complex (less than 10% of pre-European extent remaining in Perth and Peel, EPA 2015) is retained in larger adjoining patches over 17 hectares. Generally, Rural Residential subdivisions consists of lots around 1 hectare, resulting in fragmentation of

any remaining vegetation and degradation of any vegetation retained within future subdivisions even if provisions are made for vegetation retention, building and infrastructure restrictions. Figure 2 demonstrates the limitations of local planning scheme provisions aiming to control vegetation clearing on rural zoned lands. Despite existing provisions in the City of Rockingham Local Planning Scheme No. 2 (April 2016), vegetation is being incrementally lost through inappropriate land use or property maintenance approaches.



Figure 2: An example of loss of understorey vegetation and habitat on a property zoned Special Rural despite provisions including vegetation clearing control measures. Further division of similar lots into smaller lots to accommodate Rural Residential development will exacerbate the loss of habitat.

PPGGP's Action Plan B-Rural Residential suggests that lands containing significant environmental values (as defined in Action Plans F and G) will be ceded to the Crown and reserved for conservation. It further states that criteria relating to size, configuration and location of an area to be retained will be developed to assist the decision-making but no further detail is available at this stage.

In the absence of further information and what funding mechanisms will be available to facilitated the process of ceding to Crown of land zoned Rural Residential, it is recommended that vegetation on lands within the red boundary in Figure 1 are considered as part of the proposed conservation reserve program, in the same way as other similar rural zone properties along Jarvis Road, Baldvis (containing Stakehill Swamp; part of APCA R6) and Lot 25 Churcher Road, Baldvis (within APCA R13).

Other areas where a review of proposed land use intensifications is recommended include:

City of Cockburn:

- APCAs C16 (portion of bushland adjoining Thompson Lake reserve) - Figure3
- APCA C32 (rural lands in southern Banjup) - Figure4.

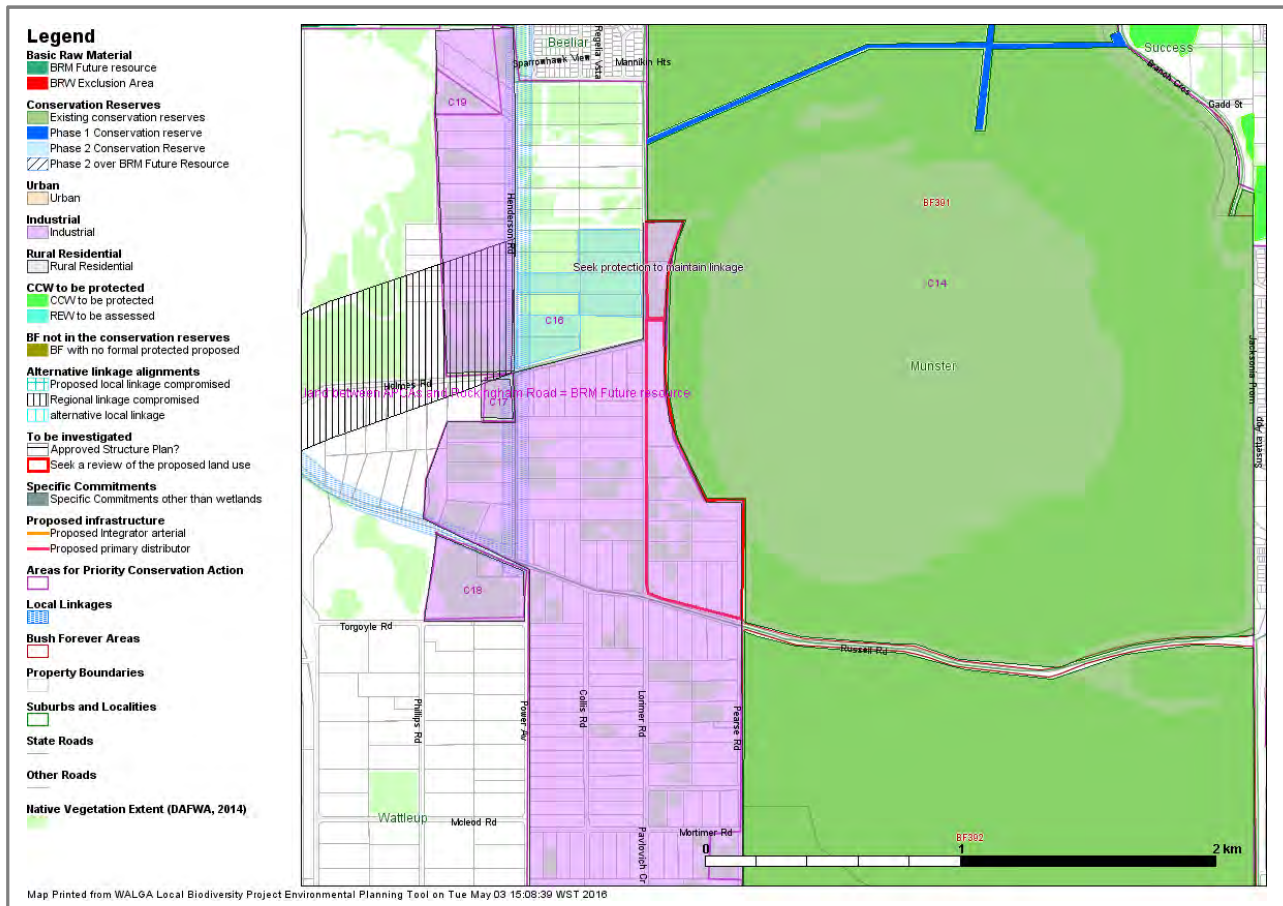


Figure 3: Lands within APCA 16 proposed to be removed from Industrial zoning. Land should be managed to provide buffer for Thomsons Lake, Ramsar wetland of international significance.

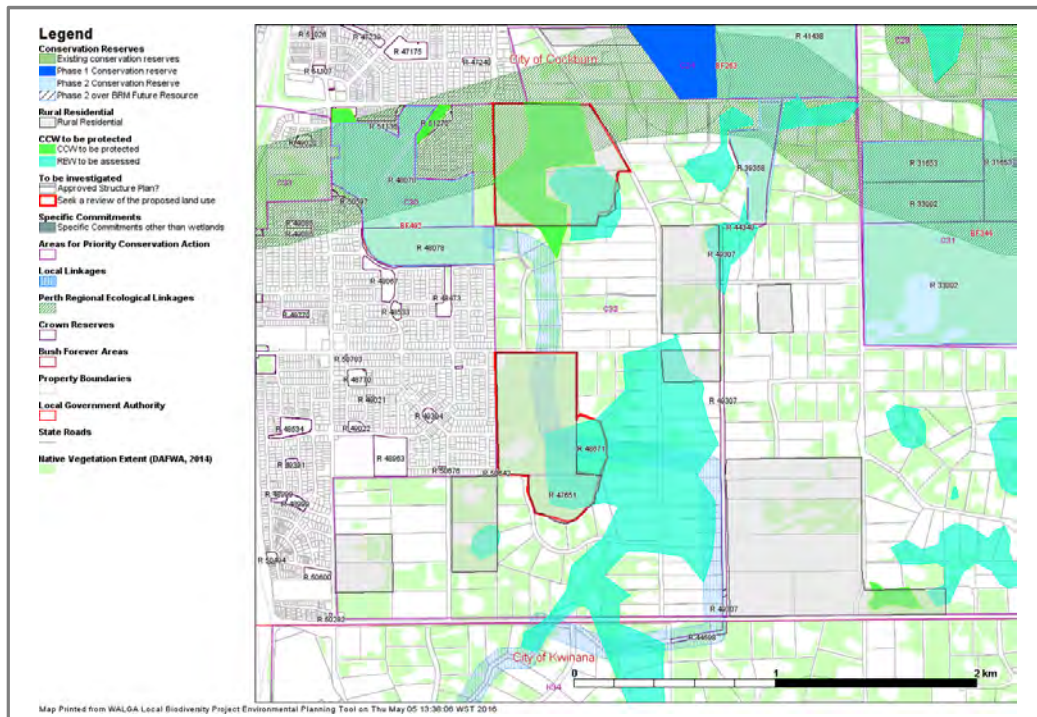


Figure 4: Lands within APCA 32 proposed to be removed from Rural Residential zoning (including R47651). Formation of a new conservation reserve is recommended consisting of R47651 and R48671 already managed by the City of Cockburn for conservation), extended by the wetland and its buffer on the adjoining property.

City of Kwinana:

- APCA K5 (bushland adjoining BF267 – Mandogalup Road bushland, Hope Valley) – Figure 5
- APCA K14 (Leda bushland) – Figure 7
- APCA K22 (bushland along Thomas Road in Hope Valley) – Figure 6
- Portion of APCA K28 (Crown reserves R24784 and R32621 – Rifle Range reserve) – Figure 8.



Figure 5: Lands within APCA 5 proposed to be retained as Rural zoned lands.

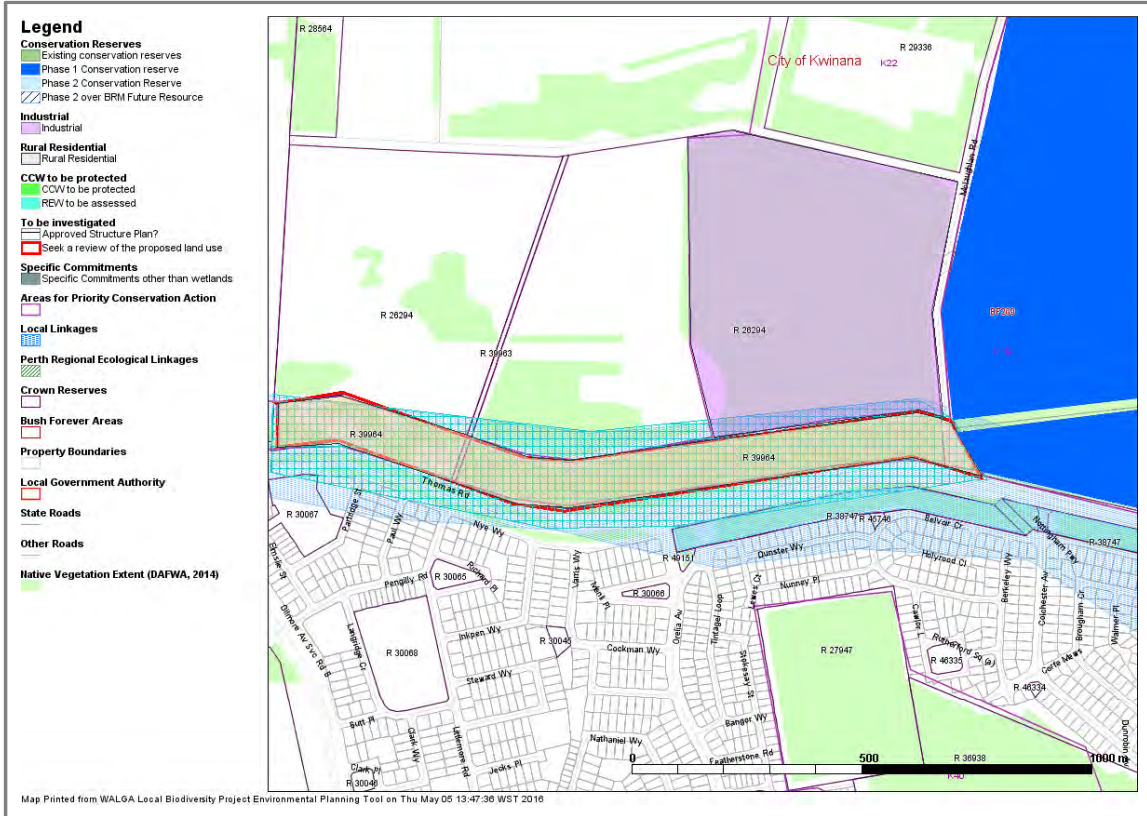


Figure 6: Lands within APCA K22 proposed to be reserved as Parks and Recreation instead of being zoned Urban.

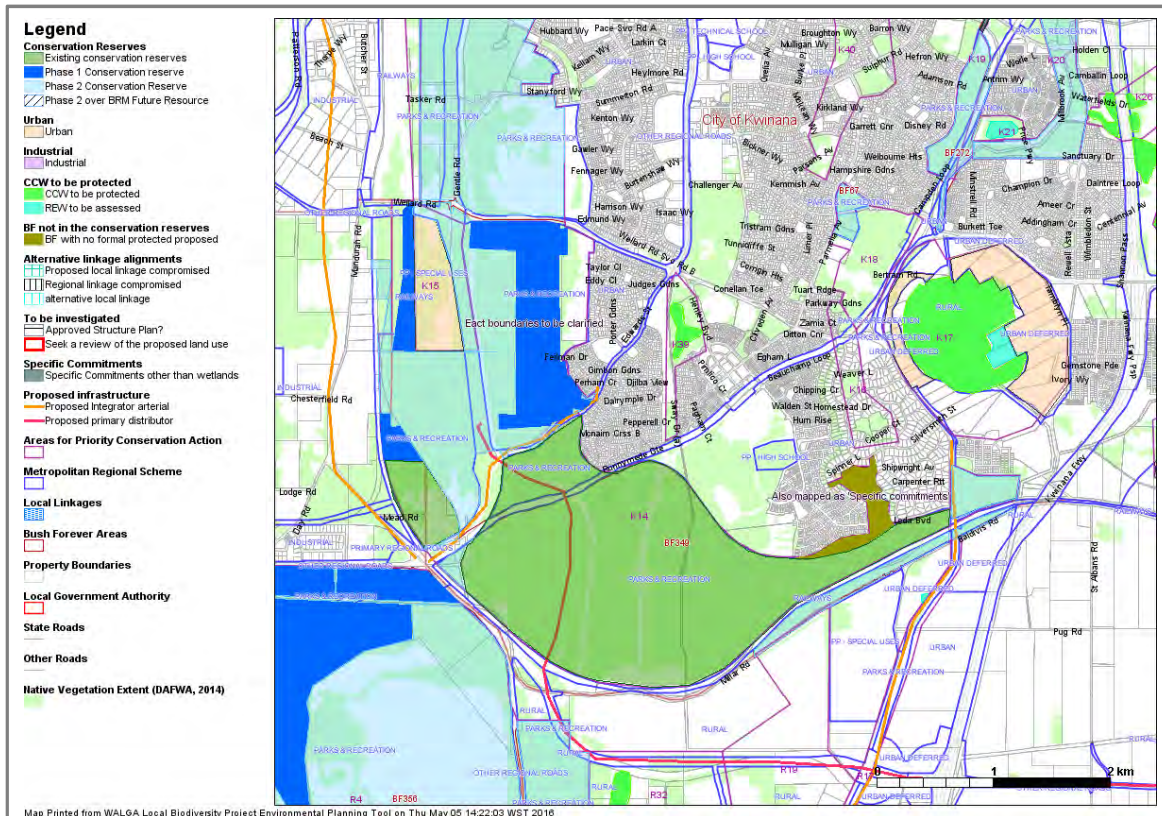


Figure 7: Proposed road infrastructure within APCA K14 will result in fragmentation of existing and future conservation reserves.

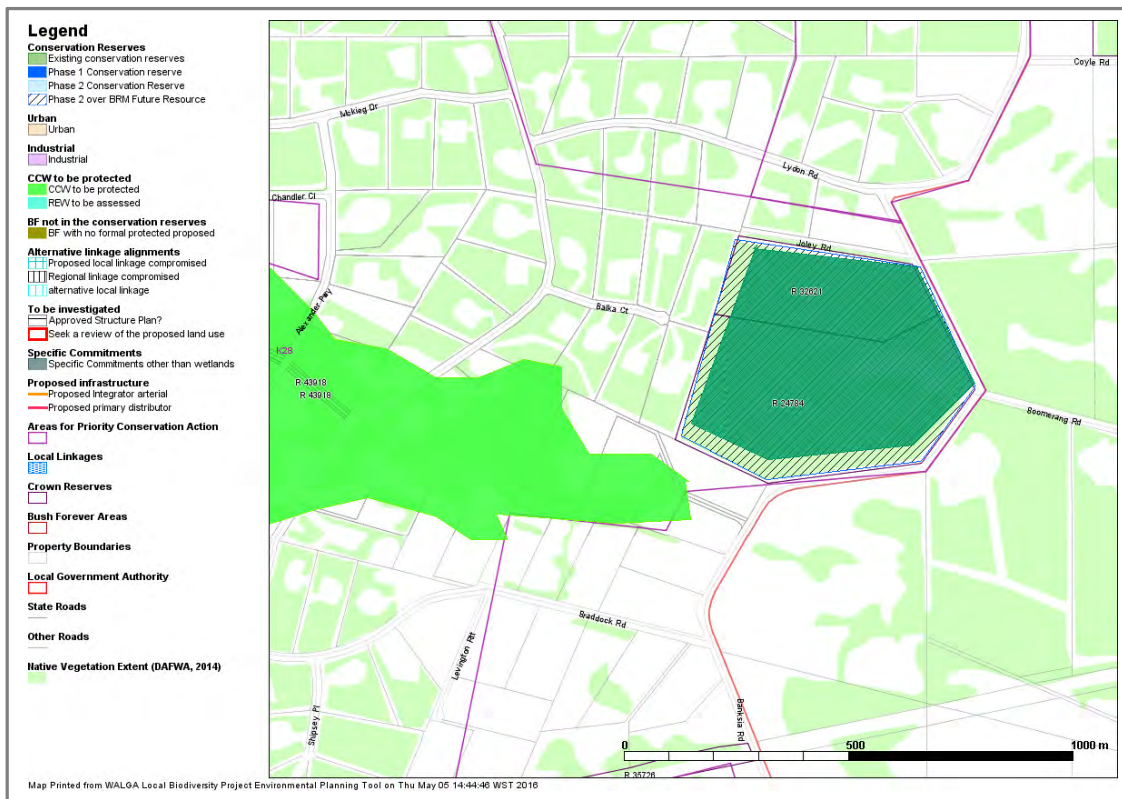


Figure 8: City of Kwinana reserves identified in the City's Local Biodiversity Strategy as contributing to conservation targets, mapped in the PGGP as Phase 2 Conservation reserves and also as Future basic raw material resource. Any mining in these reserves will affect the achievability of the local conservation objective for the Bassendean Central and South vegetation complex.

City of Rockingham:

- APCA R2 (BF355 Point Peron) – Figure 9
- APCA R13 (BF75 Churcher Swamp Baldvis) – Figure 12
- APCA R14 (BF277 in Karnup) – Figure 10
- APCA R17 (old railway reserve) - Figure 11
- APCA R22 (selected rural lands in Baldvis) - Figure 1.

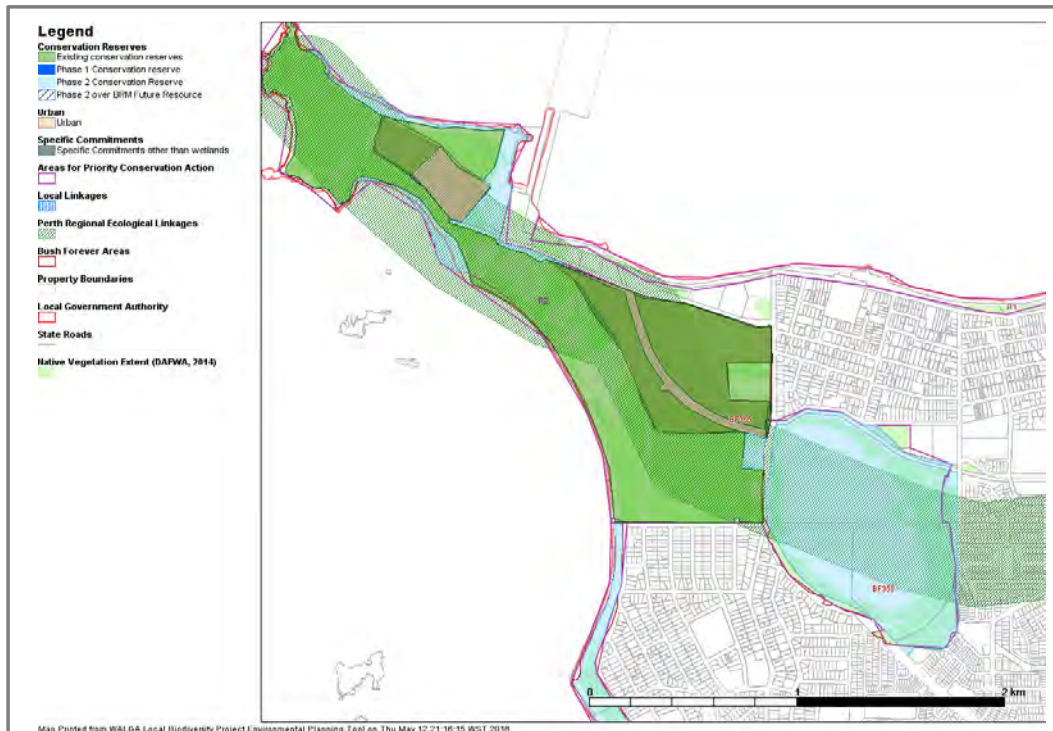


Figure 9: The proposed integrator arterial road through the middle of Point Peron bushland in addition to the proposed duplication of the wastewater pipelines will result in the fragmentation of already poorly connected significant natural area. The need and alignment of the proposed road should be reviewed.

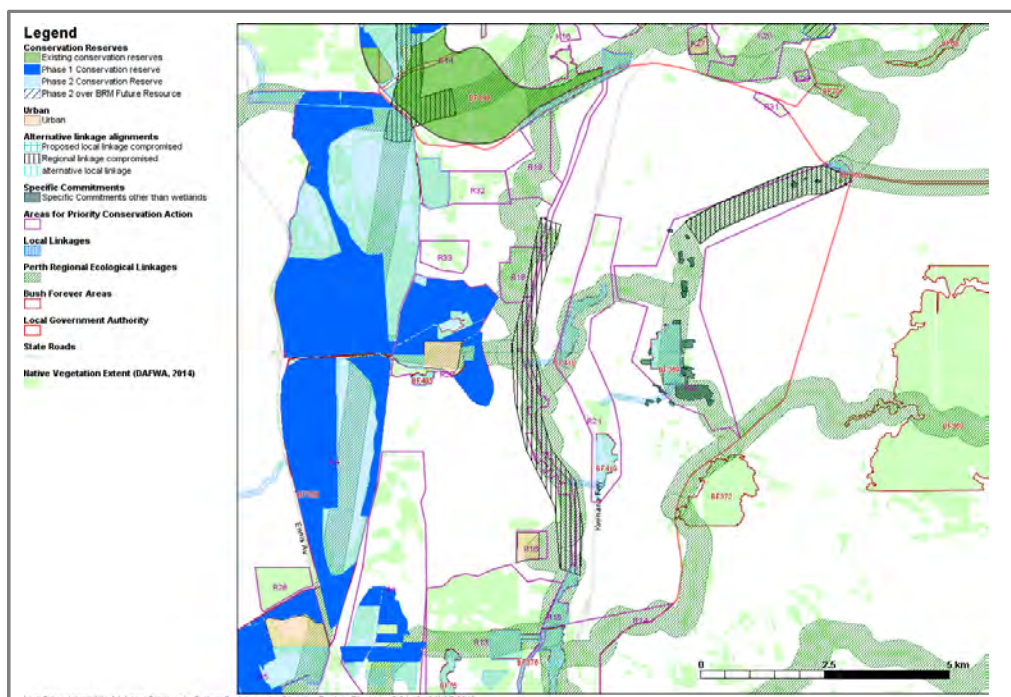


Figure 10: Proposed Urban zoning over portion of BF277 needs reviewing.

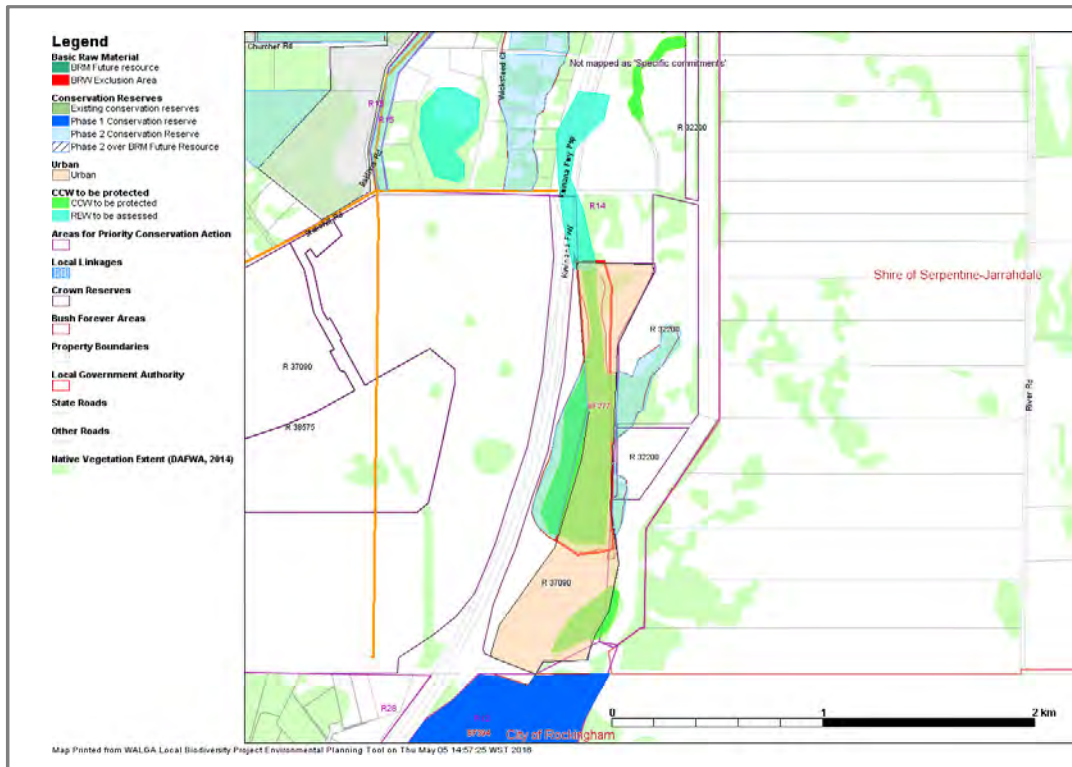


Figure 11: A new road reserve is proposed within the existing Parks and Recreation reserve (MRS) which forms a critical part of a regional ecological linkage (APCA R17).

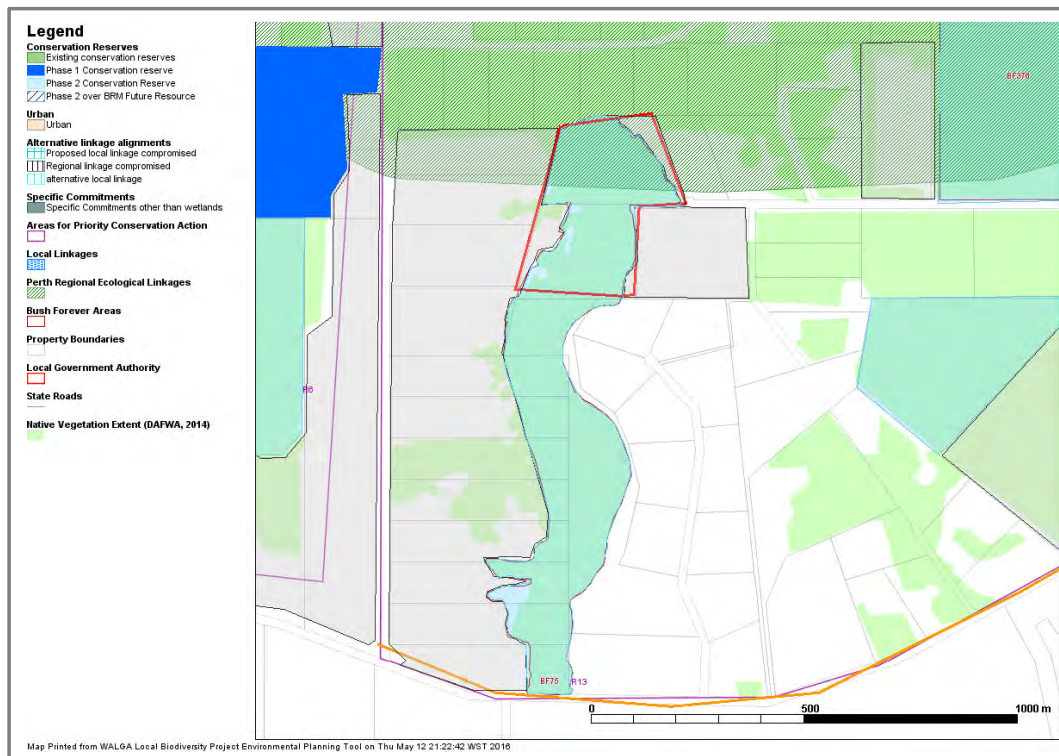


Figure 12: Without specific provisions to retain vegetation within large vegetated lots, up-zoning of the lots highlighted by the red boundary is not recommended.

Native vegetation within more than half of the 155 APCAs remains unaffected by the proposed 'classes of action' and therefore the APCA specific recommendations of the *Towards Establishing a Green Network* report (Local Biodiversity Program 2014) remain valid and should be used to guide future land use and natural area management priorities within those areas.

Due to the limitations of the PPGGP mapping data, it was not possible to fully assess the potential impacts of future urban development and infrastructure on connectivity within regional and local ecological linkages in the study area. Outcomes for most of the ecological linkages will need to be further negotiated through the planning process.

4.3 Impacts of proposed land use changes on ecological linkages

The most evident gaps within regional ecological linkages that will occur over time as a consequence of the PPGGP were observed within the following regional and local linkages:

- Regional linkage connecting Bush Forever Area 346 (Henderson bushland, incorporating APCAs C11 in the City of Cockburn and K10 in the City of Kwinana) to other conservation reserves to the North, South and East, potentially permanently isolating this relatively large natural area from other natural areas (Figure 13). To avoid the complete isolation of Bush Forever Area 346, a network of green spaces through the surrounding Latitude 32 industrial area will have to be established. The current strategies outlined in the PPGGP's Action Plan A do not adequately provide for this.
- Regional ecological linkage connecting Bush Forever Areas 369 (Doghill Road bushland, Baldivis), 418 (Folly Pool, Baldivis) and 360 (Mundijong and Watkins Road bushland, Mundijong and incorporating APCA R22 in the City of Rockingham). This is due to the proposed Industrial and Rural Residential zoning of natural areas between these Bush Forever Areas (Figure 14).
- Regional ecological linkage south of Bush Forever Areas 349 (Leda bushland, City of Kwinana), BF376 (Baldivis Road bushland, Baldivis), BF277 (River, Stakehill and Harvey Road bushland, Karnup) and BF394 (Lake Amarillo, Serpentine River and adjacent bushland, Karnup). All these future conservation reserves are currently connected via vegetation retained within the Parks and Recreation reserve (MRS) including the old rail reserve. The PPGGP proposes to utilise this narrow Parks and Recreation reserve as a future Integrator arterial road (Figure 14).
- Regional ecological linkages connecting Bush Forever Area 349 (Leda bushland) with Bush Forever Area 356 (Lake Cooloongup and adjacent bushland) other bushland areas east of BF349 (Figure 14). The proposed network of roads fragmenting the southern portion of Leda bushland will create permanent barriers to terrestrial fauna movement within this significant bushland area and outside. It is recommended that the proposed

road alignments are reviewed and where no alternatives are identified, specific provisions for fauna movement are set out as a condition of further development in this area.

- Two east-west local ecological linkages in the City of Kwinana that were identified to reduce the isolation of significant natural areas to be retained within Latitude 32 industrial area, northern extent of Bush Forever Area 349 (Leda bushland) and the Spectacles (Bush Forever Area 269) and adjoining conservation reserves (Figure 16).

While the PPGGP's Strategic Conservation Plan recognises the need to maintain ecological connectivity across the Perth and Peel regions, there are no specific mechanisms recommended to achieve this objective across the various land uses.

To conclude, the PPGGP could potentially significantly contribute to the long term security of high conservation value natural areas in the South West Metropolitan Region.

Land use intensification proposals will have significant impact on natural areas in several localities and it is recommended that better environmental outcomes are negotiated for these areas before the final endorsement of the PPGGP.

Finally, the *Towards Establishing a Green Network* (Local Biodiversity Program 2014) provides valid guidance for the South West Group member Local Governments and the development industry regarding conservation priorities within lands affected by Urban, Industrial and Rural Residential development in the region to achieve the expected conservation outcomes outlined in the PPGGP Strategic Conservation Plan.

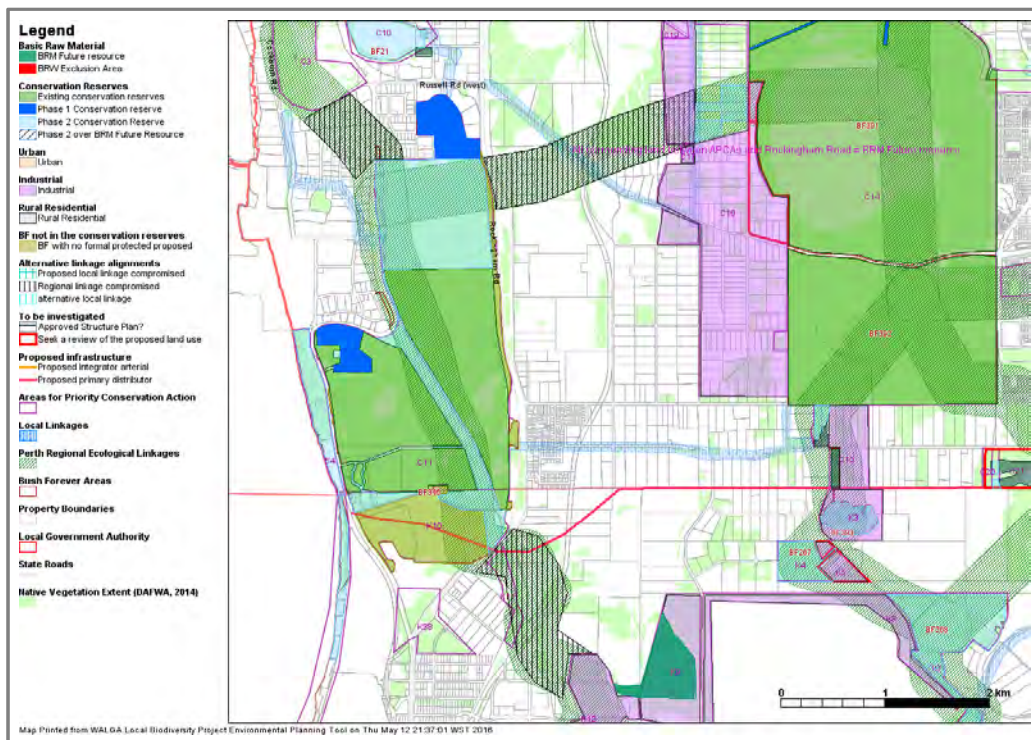


Figure 13: Proposed future industrial development will isolate Bush Forever Area 346 if no specific provisions to retain vegetation along ecological linkages are incorporated in the future development planning.

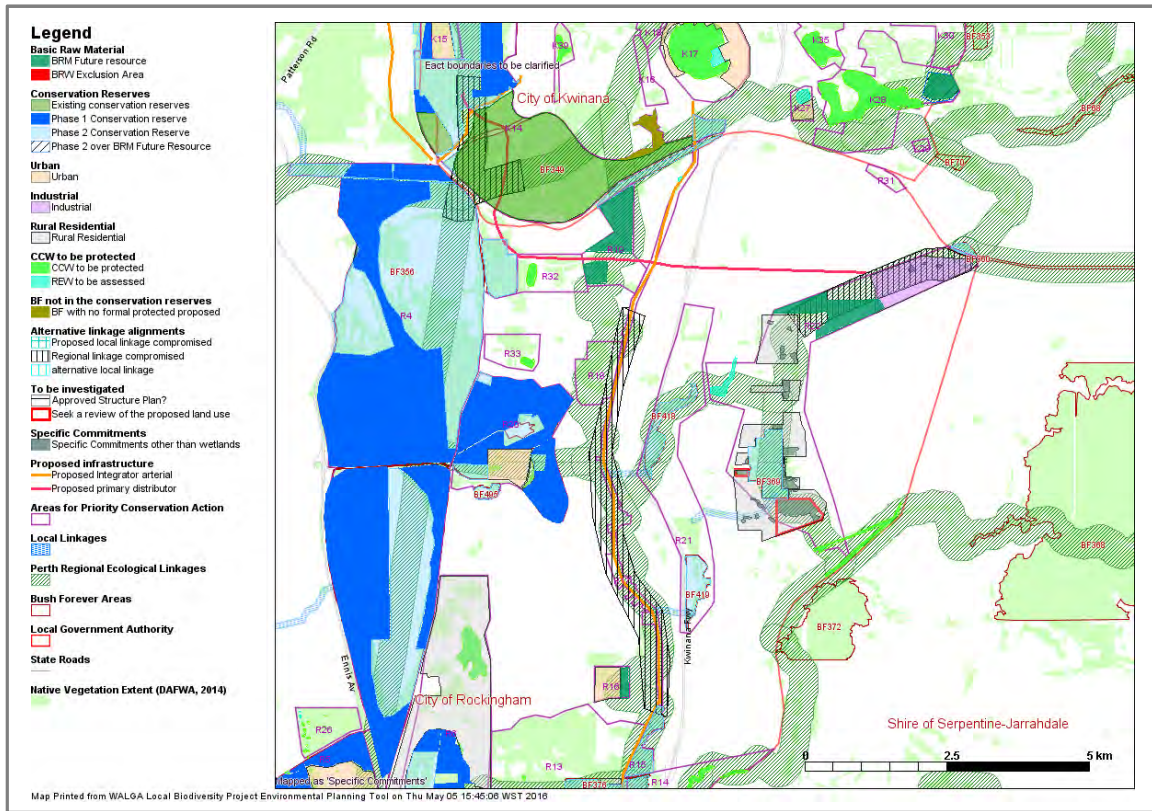


Figure 14: Four regional ecological linkages compromised by proposed future development.

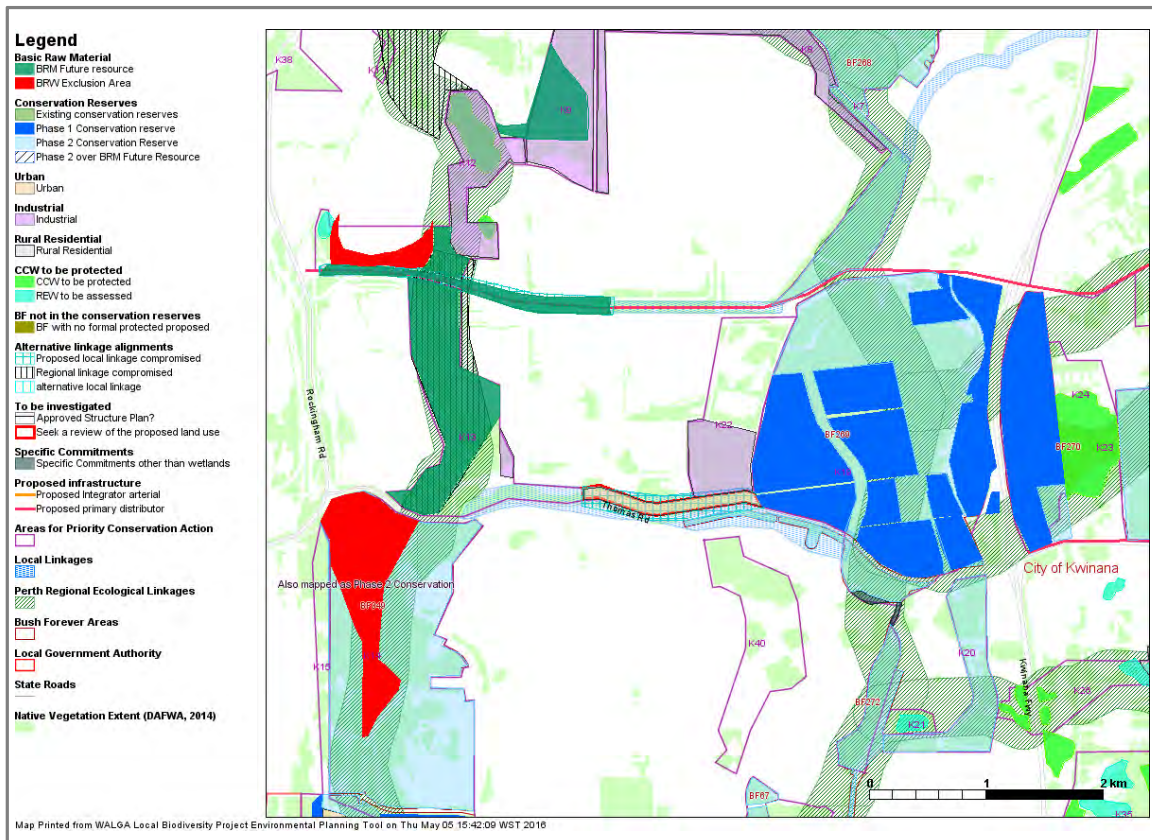


Figure 15: Two east-west local ecological potentially affected by proposed future development.

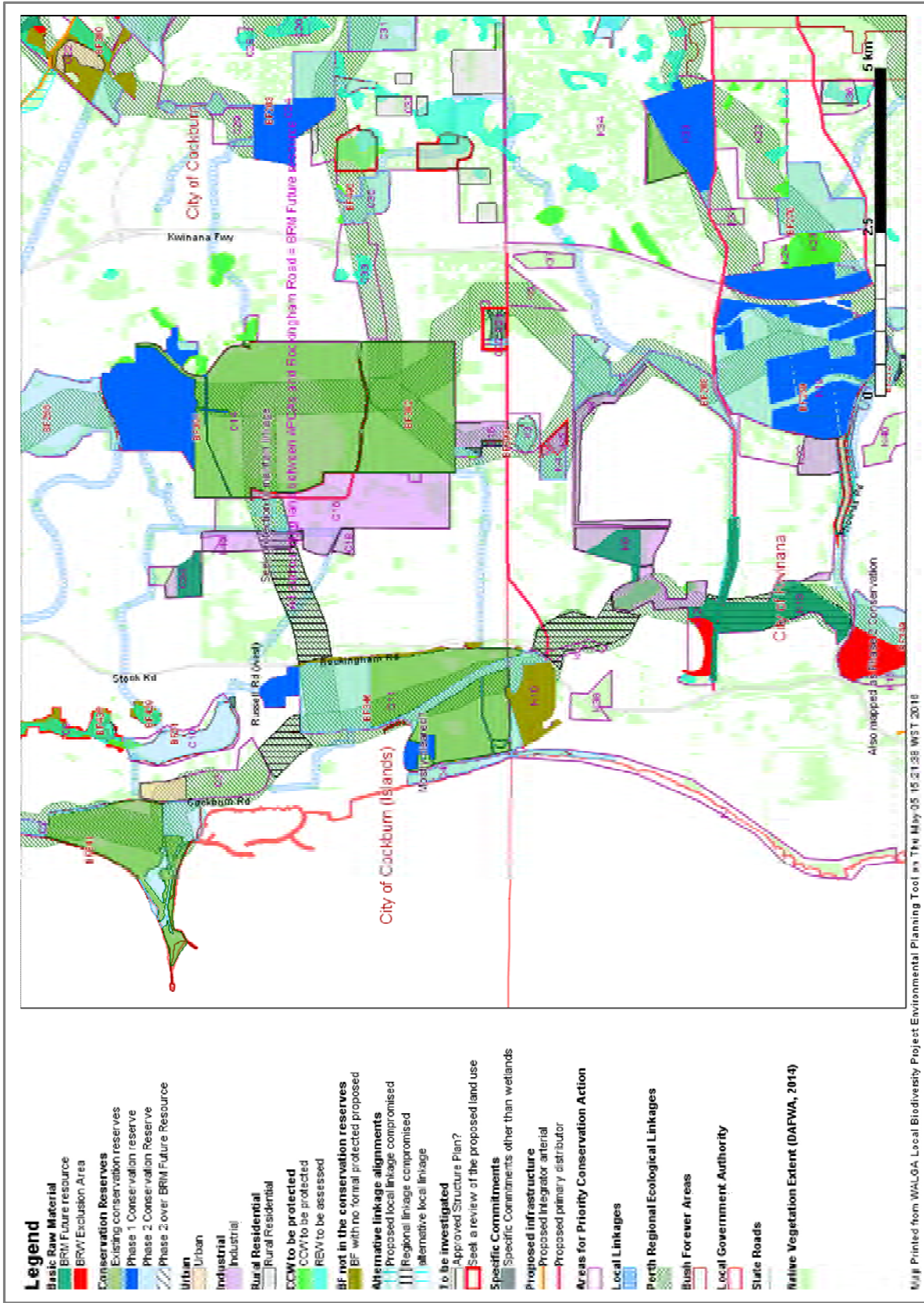


Figure 16: Proposed future industrial development will isolate Bush Forever Area 346 if no specific provisions to retain vegetation along ecological linkages are incorporated in the future development planning.

5 Recommendations

The following recommendations summarise the findings of the detailed assessment of PPGGP implications on the feasibility of conservation actions recommended for 155 APCAs across the six South West Group member Local Governments:

- Support the draft proposal for the conservation reserve network as outlined in the PPGGP's Action Plan H, following the clarification of any issues raised for specific sites and listed in Appendix A.
- Following the clarification of the listed site specific issues, seek the formal protection for additional natural areas within APCAs C9 (Market Swamp), C20 and C21 (Crown reserve R27057, Munster), C22 (Acourt Road bushland in Banjup), C23 (Fraser Road bushland in Banjup), K10 (Henderson bushland), K14 (portion of Leda bushland), K23 (portion of BF270 in Anketell) and R24 (foreshore reserves in Port Kennedy).
- Seek the review of proposed land use intensifications for selected natural areas within APCAs C16 (portion of bushland adjoining Thomsons Lake reserve), C32 (rural lands in southern Banjup), K5 (bushland adjoining BF267 – Mandogalup Road bushland, Hope Valley), K14 (new road reserves in Leda bushland), K22 (bushland along Thomas Road in Hope Valley), K28 (City of Kwinana reserves – Rifle Range), R2 (Point Peron), R13 (BF75 Churcher Swamp, Baldivis), R14 (BF277 in Karnup), R17 (old railway reserve) and R22 (rural lands in Baldivis).
- Seek the development of guidelines for the transitional period until the criteria for selecting significant natural areas to be protected through land use planning processes within the 'classes of actions' are developed as specified in the PPGGP Action Plans A and B.
- Seek the development of guidance on criteria for establishing ecological linkages across Perth and Peel, in particular addressing the needs of terrestrial fauna and landscaping within high density developments and in areas where roads intersect conservation areas.
- Seek the review of recommended planning mechanisms (listed in Action Plans A and B) for retaining additional conservation significance natural areas to include 'Environmental Conservation' local reserve classification.
- Refer to APCA specific recommendations (listed in Appendix A) to address potential impacts of future development within APCAs and the management of retained and protected natural areas.

References

Environmental Protection Authority (2015) *Perth and Peel @3.5 Million – Environmental Impacts, risks and remedies. Interim strategic advice of the Environmental Protection Authority to the Minister for Environment under section 16(e) of the Environmental Protection Act 1986.* Office of the Environmental Protection Authority, Perth

Local Biodiversity Program (2014) *Towards Establishing a Green Network – Vegetation connectivity modelling-Testing the effectiveness of a proposed green network for the South West Group member Local Governments.* Western Australian Local Government Association, West Leederville.

State of Western Australia (2000) *Bush Forever – Volume 1 – Policies, Principles and Processes.* Western Australian Planning Commission, Perth.

Western Australian Planning Commission (2015) *Draft Planning Framework – South Metropolitan Peel Sub-region.* Map

APPENDIX A: Summary of findings and recommendations specific to each Area of Priority Conservation Action

Abbreviations:

APCA – Areas of Priority Conservation Action (South West Group 2014 Towards Establishing a Green Network)

BRM – Basic Raw Material

CCW – Conservation Category Wetlands

LPS – Local Planning Scheme





MRS – Metropolitan Region Scheme

PPGGP – Perth and Peel Green Growth Plan

REW – Resource Enhancement Wetlands

SWSRPF - South West Sub-regional Planning Framework (2015)

Colour Classification of APCAs:

-  **Red** (as in the Towards Establishing a Green Network report) – critical to maintaining the integrity of regional linkages but not within land tenure providing protection.
-  **Orange** – APCAs where PPGGP's Conservation Plan recommendations increase the long -term protection of lands.
-  **Green** (as in the Towards Establishing a Green Network report) – APCAs with local reserves which should be recognised in Local Planning Schemes as Local Conservation (and Recreation) Reserves via introduction of new reservation into the Local Planning Schemes. They identify reserves where an addition of conservation purpose is proposed.
-  **Blue** – APCAs where it is recommended to amend the land use change proposed in the PPGGP.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
CITY OF FREMANTLE				
F1	Unaffected – Urban	To be investigated – southern portion of F1, reserved as Open Space in the LPS is mapped by PPGGP as having approved structure plan. Potential loss of 0.6ha native vegetation	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Investigate the provisions of the Structure Plan approved for the southern portion of F1 as identified by the PPGGP mapping. Note, at the time of development of the Towards Establishing a Green Network report, no structure plan was available for F1. Follow recommendations of the Towards Establishing a Green Network report for the Open Space area.
F2	Unaffected (Green Network)		Unaffected	Follow recommendations of the Towards Establishing a Green Network report
F3	0.08ha Phase 2 Conservation reserve The remainder of F3 - Unaffected – Parks and Recreation in MRS	0.08ha formally protected	Elevated protection for 0.08 ha Unaffected	Follow recommendations of the Towards Establishing a Green Network report
F4	Phase 2 Conservation reserve (Green Network)	12.57 ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
F5	Unaffected – Parks and Recreation		Unaffected	Follow recommendations of the Towards Establishing a Green Network report
F6	Unaffected – Urban In PPGGP mapping BF 490 classified as ‘Specific Commitments’		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report
F7	Unaffected – Parks and		Unaffected	Follow recommendations of the Towards Establishing a

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Recreation			Green Network report
F8	Unaffected – Urban In PPGGP mapping, native vegetation classified as 'Broad commitments and values'		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report
F9	Unaffected (Green Network)		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report
Local linkages between F2 and F3	Area of 0.25ha – Phase 2 Conservation Reserve (no vegetation on this site) Unaffected – subject to retention of existing POS and verges along streets providing adequate space for tree planting and landscaping.			Consider redirecting the western portion of local linkage currently running along Port Beach Road to the eastern boundary of Leighton Development along Curtin Avenue to POS in the centre of Leighton development to the foreshore reserve. Clarify the reasons for proposing an inclusion of 0.25ha of grassed POS into Phase 2 Conservation Reserves – is it an intended future revegetation site? Support revegetation of this site to extend the river foreshore reserve and to build a linkage to the coastal reserves.
TOWN OF EAST FREMANTLE				
EF1-9	Unaffected (Green Network – EF2, 3, 4, 5, 6 and 7) Southern portion of EF7 and two properties near EF3 – Phase 2 Conservation Reserve	It is proposed to formally protect 10 lots with mature trees (no native vegetation mapped on these sites) (EF 7 and 4 lots on the corner of Stirling Hwy	Conservation commitment to protect migratory birds – maintain vegetated buffers EF1, EF2 and EF3 mapped as areas 'Broad Commitments and values'	Clarify the reasons for proposing the inclusion of the selected 10 lots – the selected properties include buildings, car parks and cleared land. Follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
		and Beach St near EF3)		
Local linkage along Stirling Hwy	Unaffected/Road		Unaffected	Follow recommendations of the Towards Establishing a Green Network report
CITY OF MELVILLE				
M1	Existing conservation reserve (R35066: 6.35ha of native vegetation) Phase 1 Conservation reserve (no native vegetation mapped but some retained within the 4ha reserve) Phase 2 Conservation reserve (Green Network) – includes extensive cleared areas	Additional approx. 32ha formally protected	Elevated protection for BF	Implement the City of Melville Foreshore Restoration Strategy Review recommendations (2009)
M2	Unaffected – Urban, Parks and Recreation		Unaffected, however outcomes for areas with remnant vegetation will be guided by the proposed	Follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
			<p>criteria as outlined in Action Plan A.</p> <p>PPGGP mapping shows areas of remnant vegetation as 'Broad Commitments and Values'</p>	
M2 (fore shore)	Phase 2 Conservation Reserve (area of BF329) Unaffected – Parks and Recreation	1.6ha formally protected	Elevated protection for Bush Forever Area within M2	Support formal protection and implement the City of Melville Foreshore Restoration Strategy Review recommendations (2009)
M3	Unaffected – Parks and Recreation		PPGGP mapping identifies as 'Broad Commitments and Values'	Implement the City of Melville Foreshore Restoration Strategy Review recommendations (2009)
M4	Unaffected – Parks and Recreation		PPGGP mapping identifies as 'Broad Commitments and Values'	Implement the City of Melville Foreshore Restoration Strategy Review recommendations (2009)
M5	Phase 2 Conservation reserve (but not recognised in the sub-regional plan as Green Network)	3.1 ha formally protected (and additional 4.2ha of the total vegetated area is within the City of Canning)	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M6	Unaffected – Urban		Unaffected- site developed under approved structure plan, includes CCW for which specific commitment are included in the Action Plan H	Follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
M7, M8, M9, M10, M11	Unaffected - Urban		Remnant vegetation within POS mapped as 'Broad Commitments and Values' in the PPGGP mapping	Follow recommendations of the Towards Establishing a Green Network report Feasibility of the local linkage connecting BF338 and BF245 through these local reserves will depend on the retention of all current POS areas.
M14, M15	Unaffected – Urban, Parks & Recreation		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Includes areas mapped as 'Broad Commitments and Values'.	Follow recommendations of the Towards Establishing a Green Network report.
M17, M24, M25, M26, M27, M28, M29, M30, M31	Unaffected – Urban		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Vegetation within M26 and M27 mapped as 'Specific Commitments' in the PPGGP (due to presence of threatened species)	Follow recommendations of the Towards Establishing a Green Network report
M12	Unaffected (Green Network)		Unaffected	Follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
M13	Phase 2 Conservation reserve- 3 small patches	Approximately 23ha of vegetation, including 6.5ha of CCW formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M16	Phase 2 Conservation reserve	4ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M18	Phase 2 Conservation reserve (Green Network)	34.5ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M19	Phase 2 Conservation reserve (Green Network)	5.4ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M20	Phase 2 Conservation reserve (Green Network)	9.9ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M21	Phase 2 Conservation reserve (Green Network)	43ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M22	Phase 2 Conservation reserve (BF338) (Green Network – includes lands adjoining the BF area) Outside BF - Unaffected	10.5ha formally protected CCW within Urban	Elevated protection for Bush Forever Area 338 Commitment to protect CCWs (Action Plan H)	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
M23	Phase 2 Conservation reserve (Green Network)	46.7ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
CITY OF COCKBURN				
C1	Phase 2 Conservation	2.5ha formally	Elevated protection for	Support formal protection and follow recommendations of the

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	reserve (area of 10ha, including 2.5ha of vegetation) Unaffected (R24787, including 5.8ha of vegetation) and land zoned Urban (1.99ha)	protected in Phase 2	<p>portion of vegetation in C1 (29% of remnant vegetation in C1).</p> <p>For land zoned Urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).</p>	<p>Towards Establishing a Green Network report.</p> <p>Seek clarification, why vegetation in R24787 is not proposed to be formally protected? This reserve is already managed by the City for conservation.</p> <p>Seek formal protection for vegetation within R24787.</p>
C2	Phase 2 Conservation reserve	6.4ha formally protected in Phase 2	Elevated protection	<p>Support formal protection for the foreshore vegetation and follow recommendations of the Towards Establishing a Green Network report</p> <p>Seek clarification and review of the proposal to include R29678 (Caravan Park) into Phase 2 Conservation Reserve classification.</p>
C3	<p>Portion currently reserved Public Purposes-Special Uses (MRS) – Urban</p> <p>The southern portion – reserved Public Purposes Water Authority – no change</p>	6.45 ha of Cottesloe C&S subject to future development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report
C4	Phase 2 Conservation Reserve	15.9ha formally protected in Phase 2	Elevated protection	<p>Support formal protection for the foreshore vegetation and follow recommendations of the Towards Establishing a Green Network report</p> <p>Seek clarification and review of the proposal to include R24308 (Recreation & Camping) into Phase 2 Conservation Reserve classification.</p>

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
C5, C6	C5 - Phase 2 Conservation reserve (Open Space portion of vegetation within C5 and a portion of Road reserve) C6 - Phase 2 Conservation reserve (Open Space)	C5+C13 – 64.7ha formally protected in Phase 2 C6 – 9ha formally protected in Phase 2 13ha of Cottesloe C&S subject to future road construction	Elevated protection Action Plan C: Infrastructure	Support formal protection and follow recommendations of the Towards Establishing a Green Network report Seek clarification for including portion of road reserve into Phase 2 Conservation Reserve
C7, C12,	Unaffected - Urban		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Several patches of remnant vegetation mapped as 'Broad Commitments and Values'	Follow recommendations of the Towards Establishing a Green Network report
C8	Unaffected (Open Space)		Unaffected	Follow recommendations of the Towards Establishing a Green Network report
C9	Unaffected – Urban Subject to REW review/potential upgrade to CCW classification	26.65ha potentially subject to future development, including a CCW and REWs	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Commitment to protect CCWs and review of REWs (Action Plan H)	<ul style="list-style-type: none"> • Seek clarification why BF435 is not included in the proposed Conservation Reserve extension program. It is mapped as 'Specific Commitments' in the PPGGP mapping but not formally protected. • Seek recognition of the conservation values of BF435 in the regional and local scheme by removing the Urban (MRS) and Residential (LPS) zoning and reserving BF435 and the adjoining CCW as Parks and Recreation.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
			BF435 mapped as 'Specific Commitments'	<p>Supporting arguments for the above recommendation:</p> <ul style="list-style-type: none"> • BF435 consists of numerous Crown reserves, including reserves vested for conservation (R48547 and R51185). While all these reserves are 'Subject to 20A' type reserves, their status can be changed to conservation, and 20A provisions removed. • All these reserves are actively managed by the City for conservation. • Packham and Troode Street (Cable Water Ski Park) Structure Plans shows all the reserved areas as POS. • While the PPGGP mapping indicates that the area of R51185 is covered by an approved structure plan, no structure plan covering that area seems to be listed on the City's website. R51185 is vested for Public recreation and conservation, yet in the local planning scheme is zoned 'Residential'. Unless an approved structure plan is identified to cover the areas of R51185, the PPGGP mapping and planning documents need to be amended to reflect the reserve's purpose and the environmental values retained within this reserve. • The proposed land use classification should be extended to include the CCW and REW south of R51185.
C10 & C11	<p>C10 - Phase 2 conservation reserve</p> <p>C11 (BF346) – Phase 1 Conservation Reserve</p> <p>Phase 2 Conservation</p>	<p>C10 - 11.4ha formally protected in Phase 2</p> <p>C11: Phase 1 – 18.4ha formally protected</p>	<p>Elevated protection</p> <p>Loss of vegetation within corridors for the wastewater pipelines</p>	<p>Seek clarification for including R39455 (Recreation – motocross) and R37426 (Recreation) as priority for formal protection – both reserves are mostly cleared and developed for motorsports.</p>

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Reserves: Current conservation reserve: R39752 & R39584.	Phase 2 – 150.3ha Proposed wastewater pipelines		Support formal protection and follow recommendations of the Towards Establishing a Green Network report Building connectivity between C11 and other bushland areas should be the highest priority (see comments on regional and local linkages). C11 (BF346) is at risk of becoming isolated.
C13	Phase 2 Conservation reserve Eastern portion outside BF247 – Unaffected - Urban	See C5	Elevated protection For the portion zoned Urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
C14	Phase 1 Conservation reserves: North Lake and adjoining bushland; South Lake Reserve (not crown land), Bibra Lake; R31829, R15556, R31829?; R49384; L500, L9001, L2264 west of Hammond Road (part of Beeliar RP). Phase 2 Conservation Reserves: Bibra Lake and adjoining bushland = R46787, R6208, L800 North Lake Road, L40 Hope Rd; R40057; R44060, R51121; R45113,	Formally protected in Phase 1: 227.29ha In Phase 2: 190.9ha Note: Phase 2 includes additional 3 lots with no native vegetation mapped (total land area 19.5ha)	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	<p>R30839; Yangebup Lake reserve (including R49078 and freehold land, but only portion of R48313 on Beeliar Dr?); R48942?</p> <p>Existing conservation reserve: R15556, R29241, R48291 (561.5ha)</p>			
C15	<p>Phase 2 Conservation</p> <p>Industrial (Industrial Investigation) including areas mapped as 'Specific Commitments'</p>	<p>2.75ha formally protected</p> <p>12.8ha affected by Industrial development, including 2.8ha mapped as 'Specific Commitments' in the PPGGP</p>	<p>Elevated protection</p> <p>Outcomes for vegetation within land zoned Industrial will be guided by the proposed criteria outlined in Action Plan A.</p>	<ul style="list-style-type: none"> • Support formal protection • Seek clarification for reasons not to protect the whole extent of BF area within C15 (2.75ha mapped as Phase 2 and 2.8ha mapped as 'Specific Commitments' within Industrial zoning. • Seek support for retaining further vegetation within C15 to form an ecological linkage between BF392 and BF393.
C16	<p>Phase 2 Conservation reserve – 7 selected lots between Lorimer, Holmes and Henderson Roads (southern portion of land reserves in MRS PP_ WSD) and west of Henderson Road.</p> <p>Industrial (Industrial investigation) – south and west of the Proposed Phase 2 Conservation reserves</p>	<p>13.7ha formally protected</p> <p>Within Industrial: 18.81 ha of Karrakatta Complex-C&S; 2.89 ha of Herdsman Complex; 35.8 ha of Cottesloe Complex-C&S</p>	<p>Elevated protection for 14% of vegetation in C16 (96ha of vegetation currently retained in APCA C16)</p> <p>Potential loss of 57.5ha due to future industrial development – outcomes guided by Action Plan A.</p>	<ul style="list-style-type: none"> • Support formal protection of the selected lots • Seek to review the proposal to rezone Lot5 and Lot 6 Lorimer Road from Rural to Industrial. These two properties covering about 3ha will be wedged between conservation reserves. They are vegetated and should be added to R15556, providing connection between the proposed Phase 2 Conservation areas and the existing conservation reserve. • Seek to review the proposal to zone Industrial all other lots east of Lorimer Road and north of Russell Road to provide buffer to the Ramsar wetland, Thomsons

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Unaffected (Public Purposes) – the remainder of area within C16.			Lake.
C17, C18, C19	Industrial (Industrial or Industrial Investigation)	Approximately 9ha of Cottesloe C&S within proposed Industrial zoning	Outcomes will be guided by the proposed criteria as outlined in Action Plan A. Vegetation mapped as 'Broad Commitments and values'	<ul style="list-style-type: none"> Follow recommendations of the Towards Establishing a Green Network report
C20, C21	Unaffected – Urban	About 9-10ha, including a completely degraded area is mapped as 'Specific Commitments' – reasons not clear	Not clear – development on lands zoned Urban and reserved for infrastructure will be guided by Action Plan A and C.	<ul style="list-style-type: none"> Clarify why two small portions of vegetation within a road reserve between C20 and C21 are mapped as Phase 2 Conservation but not the rest of vegetation in R27057, already managed by the City for conservation. Clarify the reasons for highlighting a portion of vegetation as 'Specific Commitments'. Our records do not match any of the criteria listed in the PPGGP mapping (see also listed in Appendix B). The same shape also appears on the Dep. Of Mines website mapped as BRM/Exclusion zone. Seek reservation of R27057 as Parks and Recreation in the MRS and re-alignment of the proposed road to the western boundary of R27057 - otherwise it is a missed opportunity of avoidance.
C22, C23	C22 (BF389) – Phase 1 Conservation reserve to include Lot 600 Acourt Rd (54ha) Phase 2 conservation reserve: Lot 125 and R33291;	186ha formally protected REWs – 33.9ha in BF390 and 11.6ha in BF398	Elevated protection No change to land use classification to 45.5ha vegetated area within BF areas	<ul style="list-style-type: none"> Following assessments of REWs conservation values, seek their formal protection when upgraded to CCWs. Seek clarification why all vegetation in BF389 and BF390 is not proposed to be formally protected. In 2000, Bush Forever classified some portions of these

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	<p>portion of lot L820 (71.6ha).</p> <p>Urban – within the cleared portion of Lot131</p> <p>Basic Raw Materials/Future Resource: Portion of Lot130 (consistent with the current level of clearing on the site.</p> <p>BRM/Exclusion area: portion of Lot 130 (about 1.2ha of Bassendean C&S)</p> <p>Unaffected (Open Space and Rural) – remaining vegetated areas of BF areas. Portions of Lots 130 and 131 include REW, their conservation status is to be confirmed via implementation of PPGGP.</p> <p>C23 (BF390) – Phase 2 conservation reserve: R33500, R33590, R33589, R1820 and R8129. Basic Raw Materials/Exclusion zone = R33500 = Phase 2 Conservation</p>	<p>C22 – all urban development footprint within cleared land.</p> <p>Road upgrade</p>	<p>Assessment of conservation status of 2 REWs</p> <p>Proposed development on cleared land</p> <p>Loss of vegetation due to the proposed road upgrade.</p>	<p>Bush Forever Areas as ‘Basic Raw Materials’ and the PPGGP mapping explanatory notes state that these types of Bush Forever Sites were not included into the Conservation Reserve Program. However, the current BRM mapping does not identify vegetation left out from the proposed conservation reserve program as BRM/Future resource. The only portion of BF389 mapped as BRM/Future Resource is already cleared and there are two portions of vegetation mapped as BRM/Exclusions zone. To ensure consistent management across BF389 and BF390, it is recommended to formally protect both sites in their entirety and manage them in accordance of one management plan.</p> <ul style="list-style-type: none"> • Seek assurance that the proposed residential development on lands surrounded by BF389 will not result in vegetation clearing within the BF area (e.g. due to fire risk reduction measures) • Seek to make the road upgrade conditional to provisions for fauna movement such as installation of fauna underpasses.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
C24	<p>Phase 1 Conservation Freehold portion</p> <p>Phase 2 Conservation R36599, R36588, R37816 & R41438 In addition R 39358 also identified as Phase 2 Conservation (not included in C24) – additional protection for 6.65ha of Bassendean C&S</p>	135.8ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report
C25 & C26	<p>Unaffected (Rural)</p> <p>Both include REW – conservation values to be reviewed as part of PPGGP implementation</p>		Review of REW conservation status	If review of REW conservation values leads to their re-classification as CCW, provide formal protection by changing the vesting purpose of reserves R40983 & R36412 (currently vested for Public Recreation). In the local planning scheme classify as Local Conservation Reserve (already managed by the City for conservation).

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
C28, C29, 32	<p>Unaffected (Rural Residential) – C28 and C29 (current MRS zoning Rural-Water Protection)</p> <p>Rural Residential (Rural Residential) – nine areas within C32. In one instance a reserve (R47651) is included to a large lot (Lot9008)</p> <p>R47651, another adjoining R48671 and several lots proposed to be rezoned to Rural Residential contain REWs. Two large lots L11 and L74 proposed to be rezoned to Rural Residential include CCW and REW.</p>	<p>Potentially affected by future Rural Residential:</p> <p>About 83ha of Bassendean C&S</p> <p>About 30ha of CCWs</p> <p>About 33ha of REW</p>	<p>Review of REW conservation status</p> <p>Outcomes for vegetation within proposed Rural Residential zoning will be guided by the proposed criteria as outlined in Action Plan B (page 24).</p> <p>Protection of CCWs (Action Plan H).</p>	<ul style="list-style-type: none"> • Clarify the reasons for including R47651, managed by the City for conservation, into the proposed Rural Residential zoning. • Clarify reasons and seek a review of the proposed up-zoning of large vegetated lots within C32 such as Lot 9008, Lots 11, 74, 29 and 30, Banjup to Rural Residential developments rather than selecting completely cleared lots within the same locality. Even with conditions requiring vegetation retention within future Rural Residential subdivisions, the proposed land use will lead to vegetation fragmentation and create unrealistic expectations by landholders. • Note: PPGGP mapping shows an approved structure plan over Lot9008, Banjup but it is not listed on the City's website. • Seek the retention of the current land use and consider opportunities for future acquisitions. • Seek formal protection for all CCWs following the review of conservation values of REWs • Follow recommendations of the Towards Establishing a Green Network report.
C30, C31	C30 (BF492) – Phase 2 conservation reserve C31	110ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report.

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	(portion of BF344) – Phase 2 conservation reserves			
C33	Unaffected - Urban R47163, R48736 and R48716 include REWs – their conservation significance to be reviewed.	1.7ha of CCW and 20ha of REW affected by future urban development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Commitment to protect CCWs and review of REWs (Action Plan H).	Follow recommendations of the Towards Establishing a Green Network report.
C34	Unaffected - Urban – top section)~ 7ha), Industrial – rest (Industrial investigation. Portion of Lot 2 and whole Lot 7 (southern part of C34) – Basic Raw materials – Future resource.	About 23 ha within future industrial zone, including BRM/Future resource	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	
City of Cockburn Local Linkages (not already described within APCAs)				
Linkage between C9 and C10	Unaffected - Urban	Linkage lost	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
Linkages between M23 and C22	Phase 2 Conservation within Jandakot Airport – extent to be confirmed as large sections are identified as future development in the Airport Master Plan	Requires clarification	Lands adjoining the airport - unaffected	<ul style="list-style-type: none"> Seek clarification how the State is expecting to formally protect vegetation at the Jandakot Airport
Linkage between C2, C3 and C11	Unaffected - Industrial		Outcomes for the remaining vegetation zoned Industrial will be guided by the proposed criteria as outlined in Action Plan A (page 31).	<ul style="list-style-type: none"> Establish alternative local linkages, such one through R41214 and between C2 and C10 through to C11. C11 and K10 (BF346) may become completely isolated due the limited greening opportunities within the surrounding industrial zoned lands. While the bushland area is large, and will continue supporting the known small fauna populations, in the long term the isolation will affect the viability of terrestrial fauna assemblage in BF346.
Linkage between C1, C6, C7 and C14	<p>C6 – Phase 2 conservation reserve (also part of regional linkage between BF247 (C13) and BF341 (C2)</p> <p>Other sections – unaffected but subject to future infrastructure locations.</p>	Elevated protection for one portion of the regional and local linkage (C6)		<p>Seek policy support for establishment of ecological linkages.</p> <p>Follow recommendations of the Towards Establishing a Green Network report</p>

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
Linkage between C10 and C14, through BF429	Unaffected - Urban	In BF 429, REWs conservation values will be reviewed. BF429 is mapped as 'Broad commitments and values' on the PPGGP mapping	Outcomes for the remaining vegetation zoned urban will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report. Note: Because BF429 is classified as 'Strategic Negotiated Planning Solutions' in Bush Forever, it was not included in the proposed Conservation Reserve program.
CITY OF KWINANA				
K1	Unaffected - Industrial Phase 2 Conservation (R24901, R24576)	4ha formally protected K1 includes 14.7 ha of Quindalup and 2.6 ha of Cottesloe C&S vegetation	Elevated protection of 2 reserves Outcomes for the remaining vegetation zoned Industrial will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Support the formal protection of R24901 and R24576 and Follow recommendations of the Towards Establishing a Green Network report
K2	Unaffected – Parks & Recreation, Port Installation and Industrial Port Installation	7.2ha of Quindalup vegetation complex affected by future port and industrial development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31).	Follow recommendations of the Towards Establishing a Green Network report Seek clarification why Port Installations were not classified as Industrial Class of Action for the purposes of the Strategic Assessment.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
K3	Phase 2 conservation reserve (Industrial Investigation) It is also a REW.	18.5ha formally protected	Elevated protection	Support formal protection of BF393 and follow recommendations of the Towards Establishing a Green Network report
K4	Phase 2 conservation reserve (Open Space)	16ha formally protected	Elevated protection	Support formal protection of BF267
K5	Industrial (Industrial)	6.4ha of Karrakatta C&S and 1ha of Bassendean C&S affected by industrial development	K5 - Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). If allowed to be fully developed – connectivity between protected areas (BF392, BF267 and BF268) reduced.	Seek to remove the proposed industrial zoning. Seek to minimise impacts of future industrial development on the adjoining conservation areas (in K4 and K3)
K6 & K37	Unaffected - Urban		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31). Vegetation within both APCAs mapped as 'Broad Commitments and Values' in the PPCCP mapping	Seek to protect representation of Bassendean C&S through planning processes as proposed in the Local Biodiversity Strategy - Follow recommendations of the Towards Establishing a Green Network report
K7	Phase 2 conservation reserve	88.2ha formally protected	Elevated protection	Support formal protection of BF268 and follow recommendations of the Towards Establishing a Green Network report

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
K8	Industrial (Industrial)	29.5 ha of Karrakatta C&S affected by Industrial	Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31)	<ul style="list-style-type: none"> Seek to retain existing vegetation to provide buffer to the conservation area (BF268) and linkage to BF267.
K9	Industrial, including Basic Raw Materials – Future Resource mostly within the cleared part of K9.	25.8ha of Karrakatta C&S affected by mining and industrial development	<p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31)</p> <p>Reduced feasibility of meeting Local Biodiversity Strategy retention target</p>	Seek to protect representation of Karrakatta C&S through planning processes as proposed in the Local Biodiversity Strategy.
K10	<p>Phase 2 Conservation (including L5, L100, L16, L472, L301-L305, R25049)</p> <p>The remainder of BF346 within the City of Kwinana – Unaffected – Industrial</p>	<p>About 23ha formally protected</p> <p>62.5ha of Cottesloe Central and South vegetation complex affected by future industrial development and a new proposed Primary distributor road</p>	<p>Elevated protection for about 28% of vegetation within the City of Kwinana portion of BF346 (the SWG Green Network proposed 75% to be formally protected)</p> <p>Reduced feasibility of meeting Local Biodiversity Strategy retention target</p>	<ul style="list-style-type: none"> Seek clarification why all vegetation in BF346 is not proposed to be formally protected. Area left out from the proposed Conservation reserve program was mapped as 'Proposed Parks and Recreation' in Bush Forever (2000). Seek to review the current zoning and the proposed road alignment. Support formal protection of nominated portions of BF346 and follow recommendations of the Towards Establishing a Green Network report (including formal protection of at least 75% of the remaining vegetation within K10).
K10	Primary distributor road		<p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A (page 31)</p>	
K11	Unaffected – Industrial and		Outcomes will be guided	<ul style="list-style-type: none"> Seek to retain vegetation to maintain connectivity along

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Primary Regional Road		by the proposed criteria as outlined in Action Plan A (page 31) Reduced connectivity within regional ecological linkage (between BF346 and BF268).	the regional ecological linkage. <ul style="list-style-type: none">•
K12	Southern portion – unaffected - Basic Raw Materials- Exclusion zone, also mapped as ‘Specific Commitments’ 8.6 ha in Basic Raw Materials – Future Resource Industrial – the remaining area, including a CCW	Affected by Industrial and BRM: 36ha of Cottesloe C&S and 3.3ha of Karrakatta C&S; 14.6ha CCW and 2ha REW To be retained (Exclusion zone): 15.7ha of Cottesloe C&S and REW (status to be reviewed)	The proposed BRM exclusion zone is consistent with the proposed conservation area in Latitude 32 Local Biodiversity Strategy. Outcomes for the areas outside the BRM Exclusion zone will be guided by the proposed criteria to be developed as outlined in Action Plan A (page 31) Reduced and potentially lost connectivity within regional ecological linkage between BF346 and BF349.	<ul style="list-style-type: none"> • Seek clarification regarding plans for formalising protection of vegetation within the BRM Exclusion zone. • Follow recommendations of the Towards Establishing a Green Network report (retention and management of vegetation within Public Recreation reserve R29626).
K13	Basic Raw Materials – Future Resource (most of K13)	51.3ha of Cottesloe C&S within BRM/Future Resource and 1.8ha of	69% of vegetation remaining in K13 potentially affected by	<ul style="list-style-type: none"> • Seek to maximise vegetation retention within the Parks and Recreation reservation (K13) to form an effective ecological linkage.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	<p>Industrial</p> <p>Primary distributor road</p> <p>Unaffected – Parks and Recreation (Open Space)</p>	<p>Cottesloe C&S in Industrial</p>	<p>mining and industrial development</p> <p>Reduced and potentially lost connectivity within regional ecological linkage between BF346 and BF349.</p> <p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan D.</p>	<ul style="list-style-type: none"> Seek to minimise clearing within lands mapped as BRM/Future resource.
K14	<p>Current conservation reserve: R33581, R51658, R51409. (395.12ha)</p> <p>Phase 1 conservation reserve: portion of Lot 8010, Lots 9003, 9004, 9005, 9500, 7.</p> <p>Phase 2 conservation reserve – remainder of Lot 8010, R25132, R25309, Lots 271, 1842, 0, 977, 509, 978, 115, 345, R24302. R25684 (this is vested for conservation but only Class C)</p>	<p>Additional 89.3ha formally protected in Phase 1 and 364.5ha in Phase 2 (including BRM/Exclusion zone)</p> <p>Additional 18.5ha mapped as Phase 2 Conservation south of K14 but outside any APCA.</p> <p>About 8.7ha within a Road reserve and additional vegetation</p>	<p>Elevated protection</p> <p>For the portion zoned Urban, outcomes should be subject to existing structure plan approvals, or will be guided by the proposed criteria as outlined in Action Plan A.</p> <p>Portion of BF349 within Urban zone is mapped as 'Specific Commitments' in the PPGGP mapping</p>	<ul style="list-style-type: none"> Support formal protection of BF349 and follow recommendations of the Towards Establishing a Green Network report. Seek formal protection of the portion of BF349 that remains zoned Urban following clarification of the outcomes of negotiations over this site. While this portion was in Bush Forever classified as 'Urban-Negotiated Planning Solutions', the PPGGP mapping also shows that an approved Structure and Subdivision Plan exist for this site. If the process of negotiations have been finalised, this portion of BF349 should be added to the adjoining reserve and managed for conservation under one management plan. Seek to remove new proposed road reservation and identify alternative road alignments for existing road reserves within K14. Where no alternative alignments are

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
K14	<p>Basic Raw Materials: Exclusion zone: L345, and portions of UCL to Gentile Rd (58.9ha)</p> <p>Unaffected – Urban (currently reserved Parks, Recreation and Drainage in the Local Planning Scheme) and Road Reserve (Gilmore Ave)</p>	will be cleared if the proposed new road is approved		possible, seek development conditions providing for terrestrial fauna movement.
K15	<p>Phase 1 Conservation Reserve – Lot 50</p> <p>Phase 2 Conservation reserve – Lot75 and land within road reserve</p> <p>Central part - Urban (Public Purposes)</p> <p>Unaffected - Railways</p>	<p>12.9ha formally protected in Phase 1 and 14.4ha in Phase 2</p> <p>Additional 5.2ha mapped as Phase 2 west of K15 (not within APCA and within the City of Rockingham)</p> <p>27.4ha of Quindalup vegetation affected by proposed Urban</p>	<p>Elevated protection – contributes to achieving the City’s Local Biodiversity Strategy target</p> <p>For the portion zoned Urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A.</p>	Support formal protection of BF268 and follow recommendations of the Towards Establishing a Green Network report.

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K16	Unaffected - Urban		<p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A.</p> <p>Potential loss of connectivity between BF349, BF67 and BF272.</p>	Follow the recommendations of the Towards Establishing a Green Network report.
K17	<p>Urban – portions currently zoned Urban Deferred in MRS</p> <p>Vegetated areas – currently zoned Rural in MRS, SW sub-regional planning framework reserved Parks & Recreation (due to the presence of CCW and small portion of REW)</p>	<p>About 3ha of Herdsman affected by proposed Urban zoning</p> <p>95ha of CCW and 15ha of REW – no formal protection offered (reliance on planning provisions)</p>	<p>For the portion zoned Urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A and on the proposed guidelines for determination of wetland buffers.</p> <p>Action Plan H – protection of CCW – mechanism to be identified.</p>	<ul style="list-style-type: none"> • Seek formal protection for the wetlands and their buffers. • Follow recommendations of the Towards Establishing a Green Network report.
K18	<p>Phase 2 conservation reserve: BF67 area consisting of R46708 (already vested for Bush preservation/Conservation, class C reserve, vested in the City)</p> <p>Unaffected - Urban – vegetated areas outside BF67 and R46708</p>	For 6.9ha formal protection status elevated.	<p>Elevated protection by reclassifying the Bush preservation/conservation reserve from Class C to Class A reserve.</p> <p>For the portion zoned Urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A.</p>	Follow recommendations of the Towards Establishing a Green Network report.

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K19	Phase 1 and Phase 2 Conservation reserve	230ha formally protected in Phase 1 and 195.8ha in Phase 2	Elevated protection	Support formal protection of BF269 & BF272 and adjoining reserves; and follow recommendations of the Towards Establishing a Green Network report.
K20	Phase 2 conservation reserve	38.5ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report.
K21	Unaffected - Urban		Unaffected (developed in accordance of approved plan)	Follow recommendations of the Towards Establishing a Green Network report
K22	Industrial – R26294 (Agricultural research) Urban – R39964 (Park) Unaffected: R29336 & R29335 – Public Purposes	41.7ha affected by proposed industrial and urban development	Reduced ability to formally protect vegetation as outlined in the City’s Local Biodiversity Strategy Outcomes will be guided by the proposed criteria as outlined in Action Plan A. With further loss of vegetation within K22, connectivity quality will be affected locally (SW Group Green Network report)	<ul style="list-style-type: none"> • Seek to clarify the proposed land use over R39964 and seek to remove the proposed Urban zoning over this reserve. • Seek to reserve R39964 as Parks and Recreation to extend the adjoining existing Parks and Recreation reserve and form a local east-west linkage. • Follow recommendations of the Towards Establishing a Green Network report – seek to retain and formally protect significant vegetation.
K23	Phase 1 conservation reserves: Lots 8, 101, 1191-1197 Phase 2 conservation reserve: L9, L12, 14 and L502.	78 ha formally protected in Phase 1 and 93.2ha in Phase 2 13.2ha CCW – subject to Action Plan H	Elevated protection Protection of CCW still not formalised?	<ul style="list-style-type: none"> • Clarify why not whole BF270 is included in the Conservation Reserves program. • Seek ceding to Crown of portion of BF 270 held freehold and reserved Parks and Recreation in the MRS. This land should be reserved for conservation.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Unaffected - Lot 13 currently part of BF270 not included in the conservation plan – however, whole lot includes CCW (Open Space)			
K24	Unaffected - Urban	CCW to be protected, final outcome subject to proposed wetland buffer policy	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H.	<ul style="list-style-type: none"> • Seek formal protection of CCW and its buffer and • Follow recommendations of the Towards Establishing a Green Network report.
K25	Phase 2 conservation reserve	112.3ha formally protected	Elevated protection	Support formal protection and management for conservation.
K26	Unaffected – Urban (including a Crown reserve with CCW, R49067 vested for Conservation) Rural Residential – small portion adjoining K25 – includes REW.	29.3ha of native vegetation, including 16.6ha CCWs and 16.7ha REW potentially affected by urban and rural residential development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A, B and Action Plan H.	<ul style="list-style-type: none"> • Seek to re-classify R49067 to class A reserve to formalize protection of CCW. Seek to amend its land use classification in the MRS (from Urban to Parks & Recreation) • Follow recommendations of the Towards Establishing a Green Network report.
K27, K28, K29, K30, K31, K32, K34, K36	K28 – Phase 2 conservation reserve – only including R32621 & R24784 (23ha). The same reserves are identified as Basic Raw Material/Future Resource K27 – Urban, includes REW to be assessed Unaffected – K28 outside	In K36, 11ha of Bassendean C&S potentially affected by Rural residential (including REW) In K27 (4.7ha REW), K32 (21ha CCW, 13.7ha REW), K34 (54ha CCW, 193ha REW) and K36 (13ha)	Outcomes will be guided by the proposed criteria as outlined in Action Plan A, B and Action Plan H.	<ul style="list-style-type: none"> • Seek formal protection of R32621 and R24784 (in K28) – Phase 2 Conservation and its remapping to BRM/Exclusion zone (vs BRM/Future Resource) • Follow recommendations of the Towards Establishing a Green Network report.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	<p>R32621 and R24784), K29, K30, K31, K32, K34</p> <p>K28, K32, K34 and K36 include CCWs to be protected and REWs to be assessed (and potentially protected).</p> <p>Rural Residential – K36</p> <p>Phase 2 Conservation – K34 (R36759)</p>	<p>– REW to be re-assessed as outlined in Action Plan H</p> <p>In K27, 14ha of vegetation affected by future urban development</p> <p>TBC – 25.5ha (23+2.5) formally protected</p>		
K33	<p>Current conservation reserve: R36110 (27.6ha)</p> <p>Phase 1 conservation reserve: Lots 70, 91 & 31 and R17957.</p>	<p>106.2ha formally protected in Phase 1 and 1.4ha in Phase 2</p>	<p>Elevated protection</p>	<p>Support formal protection and management for conservation.</p>
K35	<p>Unaffected – Urban</p> <p>Includes large CCW, 2 other CCWs (40ha) and REWs (32.5ha) to be assessed.</p>		<p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H.</p>	<p>Follow recommendations of the Towards Establishing a Green Network report.</p>
K38	<p>Unaffected - Industrial/Road</p>		<p>Outcomes will be guided by the proposed criteria as outlined in Action Plan A.</p> <p>Remnant vegetation mapped as 'Broad</p>	<p>Follow recommendations of the Towards Establishing a Green Network report.</p>

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
			Commitments and Values'	
K39 & K40	Unaffected - Urban Within K40 – R27947 – unaffected (Public Purposes)	R43072 includes about 5ha of CCW	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H.	Follow recommendations of the Towards Establishing a Green Network report.
City of Kwinana Local Linkages (not already described within APCAs)				
Local linkage between K7 through K37, K34 to C32	Mostly Urban including K37 and part of K34 – however, no impact of recommendations – use POS allocation to create stepping stones		Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H.	<ul style="list-style-type: none"> • Use planning mechanism to retain stepping stones along the local linkages. • Follow recommendations of the Towards Establishing a Green Network report.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
Local linkage between K23(BF 270) and K25 (BF 273)	Unaffected		Unaffected	<ul style="list-style-type: none"> Follow recommendations of the Towards Establishing a Green Network report.
East-west	Industrial		Potentially compromised due to industrial zoning of K12.	Focus on strengthening connectivity along the local linkage connecting K13 and K19.
Regional linkage between BF349 and BF346	Industrial and BRM/Future Resource	Potentially all remaining vegetation except two areas with wetlands in K12 could be cleared, creating a barrier more than 4km wide (with wetlands proposed to be retained in the middle)	Potentially compromised	Importance of the proposed local linkage between BF349 (K14)and BF269 (K19) increases with reduced vegetation retention within K13, Therefore seek the review of the proposed Urban zoning for R39964 to Parks and Recreation (as a continuation of other Parks and Recreation reserves along Thomas Road).

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
CITY OF ROCKINGHAM				
R1, R11, R24, R25	<p>R1 – Unaffected-Parks and Recreation</p> <p>R11 – Phase 2 conservation reserve: R34664 and portion of freehold land L9010, Golden Bay</p> <p>Unaffected – all other areas within R11</p> <p>R24 – Phase 2 conservation reserves</p>	<p>Additional 40ha formally protected in Phase 2</p> <p>29.2ha affected by proposed urban development</p>	<p>Elevated protection</p> <p>In R24, outcomes will be guided by the proposed criteria as outlined in Action Plan A</p>	<ul style="list-style-type: none"> Support formal protection and follow recommendations of the Towards Establishing a Green Network report. Seek to retain and protect vegetation within R44886 to maintain linkage between the foreshore reserves to the large BF377 (Woodman Point).
R24	<p>Existing conservation reserve – R44005 (12.5ha)</p> <p>Urban – the rest of the area within R24, including Public Recreation reserve R44886 (Public Purposes – Special Use)</p> <p>Unaffected – all other foreshore reserves</p> <p>R25 – Phase 2 Conservation reserve</p>			

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
R2	<p>Current recreation reserve R48968 managed by DPAW</p> <p>Phase 2 conservation reserve: R39475, 9458, R47145, R45307, R35176, R42518 (portion),</p> <p>Integrator arterial road</p> <p>Duplication of wastewater pipelines and outfall</p> <p>Urban</p>	Additional 30.2ha formally protected	<p>Elevated protection</p> <p>R30188, R42518, R30940 and portions mapped as Urban class of action (about 45 ha) mapped as 'Specific Commitments'</p>	<p>Support formal protection and follow recommendations of the Towards Establishing a Green Network report.</p> <p>Seek to remove the proposed road alignment through the middle of Point Peron bushland.</p>
R3 and the two adjoining local linkages	Unaffected – the same limited opportunities (Urban/Industrial)		Outcomes will be guided by the proposed criteria as outlined in Action Plan A (use of planning mechanisms to retain vegetation)	Follow recommendations of the Towards Establishing a Green Network report.
R4	<p>Phase 1 conservation reserve</p> <p>Phase 2 conservation reserves: R18452, R24411,</p>	867.3ha formally protected in Phase 1 and 425.7ha in Phase 2	Elevated protection	Support formal protection and management for conservation.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	R38812, R22429, R24411, R23780.			
R5	<p>Current conservation reserve (most of BF377) (685.6ha) Phase 1 Conservation</p> <p>Phase 2 conservation reserves</p> <p>Urban – portion of BF356 - Lots 200 and L201 – (Public Purposes) – includes a chain of CCWs</p>	<p>Approx. 39ha of native vegetation affected by future Urban development.</p> <p>Additional protection in Phase 1 – 81ha and 105.8ha in Phase 2</p>	<p>Elevated protection</p> <p>For Lots 200 and 201, outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H (include CCWs).</p>	<ul style="list-style-type: none"> • Support formal protection and management for conservation. • Seek clarifications why Lots 200 and 201 are proposed to be developed?
R6	<p>Phase 1 and Phase 2 Conservation reserves - (Open Space).</p> <p>Rural Residential – all vegetation outside the Open Space (or MRS - Parks and Recreation) reservation – change from Rural (in LPS) to Rural Residential (Including R30269 vested for Education, wetlands, conservation and</p>	<p>77.3ha formally protected in Phase 1 and 60.5ha in Phase 2</p> <p>About 90ha of vegetation affected by future Rural Residential development, including 54.6ha of CCW</p>	<p>Elevated protection</p> <p>For vegetation on land zoned Rural Residential outcomes will be guided by the proposed criteria as outlined in Action Plan B and Action Plan H (for the CCW).</p>	<ul style="list-style-type: none"> • Seek to remove R30269 from Rural Residential zoning. This reserve is 20ha and therefore meets the criteria (at least 7ha) for classification as Parks and Recreation in the regional scheme. • Minimise vegetation clearing within new Rural Residential subdivisions by seeking to place building envelopes within cleared land and identifying vegetation protection areas where feasible. • Seek to retain mature trees. • Support private landholders to retain and manage remnant vegetation

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
R6	<p>communication)</p> <p>Unaffected - a small portion currently zoned Special Rural (14.5ha) in LPS is not shown as Rural Residential in PPGGP (but is in SWSRPF)</p> <p>Unaffected – Parks and Recreation – several properties all including CCW.</p>			<ul style="list-style-type: none"> Support formal protection of the selected areas and their management for conservation.
R7	<p>Phase 2 conservation reserve – western portion of BF278</p> <p>Urban – the eastern portion of BF278 (11ha)</p> <p>Unaffected (Rural Residential) – vegetation surrounding the western portion of BF278, currently zoned Special Rural and PPGGP does not propose change.</p>	<p>11ha affected by future urban development</p> <p>29ha formally protected</p>	<p>Elevated protection</p> <p>For the portion zoned urban, outcomes will be guided by the proposed criteria as outlined in Action Plan A.</p>	<p>Support formal protection and follow recommendations of the SW Group 2014 Green Network report.</p>
R8	<p>Phase 1 conservation reserve</p> <p>All freehold lots in BF379 and BF 395, and L807 Mandurah Rd.</p> <p>In addition about 10ha</p>	<p>911ha + 10ha formally protected</p>	<p>Elevated protection</p>	<p>Support formal protection and management for conservation.</p>

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	identified as Phase 1 Conservation area within a property zoned Rural NW of R8 (between Mandurah Rd and extension of Greenham Place)			
R9	Unaffected - Urban		Outcomes will be guided by the proposed criteria as outlined in Action Plan A.	Support formal protection and follow recommendations of the SW Group 2014 Green Network report.
R10	Urban Unaffected - R42732 and R42604 (vested Public recreation) include CCW and in SWSRPF are mapped as Rural.	Affected by future urban development: 2.4ha of Quindalup, 3.2ha of Herdsman and 8.1ha of Cottesloe C&S	Outcomes will be guided by the proposed criteria as outlined in Action Plan A, B and H.	Seek to provide an adequate buffer for CCW and to retain and protect vegetation within POS.
R12	Phase 1 conservation reserves	259.9ha formally protected	Elevated protection	Support formal protection of BF394 and management for conservation.
R13	Phase 2 conservation reserves: portion of BF376 (lots 33, 3) and Lot 25 (outside Bush Forever), all freehold land within BF75. Rural Residential – selected Lots in the southern part of	Vegetation within proposed Rural Residential zoning: 49.73ha of Karrakatta C&S and 1.6ha of Serpentine River vegetation complex	Elevated protection On lands zoned Rural Residential, outcomes will be guided by the proposed criteria as outlined in Action Plan B.	Support formal protection and follow recommendations of the SW Group 2014 Green Network report. Seek to review the extent of planned Rural Residential development.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	R13 – exact extent TBC Other parts – unaffected, include a CCW.	75.7ha formally protected		
R14	Phase 2 conservation reserves: Freehold land within BF376 and BF277	36.7ha formally protection in Phase 2	Elevated protection	<ul style="list-style-type: none"> Support formal protection and follow recommendations of the Towards Establishing a Green Network report. Seek clarification for zoning most of BF277 outside R14 as Urban. Most of BF277 is mapped as CCW and as 'Specific Commitments' in PPGGP mapping. Most of the BF277 outside R14 is within a Crown reserve R37090 vested for Explosives and Forestry purposes with the Department of Mines. Considering the proposed commitment to protect CCWs through Action Plan H, the area of BF277 outside R14 should be added to the proposed conservation reserve Phase 2 within R14. Seek an amendment to the PPGGP mapping to identify the whole BF277 as a Phase 2 conservation reserve.
BF277 outside R14	Remaining vegetation in R14 unaffected.	And potentially additional 29.4ha protected or affected by proposed urban development within BF 277 outside R14.		
R15	Phase 2 conservation reserves: unclassified land adjoining Baldivis Rd, within BF376, R42054, R19326.	36.8ha formally protected in Phase 2	Elevated protection	Support formal protection and management for conservation.
R16	Basic Raw Material – Future resource – western portions of Lots 569 & 1263. Urban – Lots 19, 20 & 21.	17.96 ha of Karrakatta C&S affected by future mining and urban development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and by Action Plan D.	Seek to retain remnant vegetation within future subdivision.
R17	Integrator arterial road		Action Plan H (potential	<ul style="list-style-type: none"> Seek the removal of the proposed road through this

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
			restoration sites)	Parks and Recreation (MRS) reserve. <ul style="list-style-type: none"> • Improve habitat value of remnant vegetation within these regionally significant areas through threat control and restoration within this old railway reserve (offset planting).
R18	Unaffected – Urban and road reserve		Outcomes will be guided by the proposed criteria as outlined in Action Plan A. All vegetation mapped as 'Broad Commitments and values' in PPGGP mapping.	<ul style="list-style-type: none"> • Improve habitat value of remnant vegetation through threat control and restoration within future POS areas and existing reserves. • Retain remnant vegetation within future subdivision.
R19	Basic Raw Material – Future Resource (2 sections) Primary distributor road Rest – unaffected (Rural)	6.27ha of Cottesloe C&S and 2.5ha of Karrakatta C&S within BRM/Future resource	Outcomes will be guided by the Action Plan D.	<ul style="list-style-type: none"> • Seek to minimise impact of future mining and the proposed road. • Follow recommendations of the Towards Establishing a Green Network report.
R20	Phase 1 conservation reserve Phase 2 conservation reserves Urban – includes 5.87ha of vegetation currently zoned Rural in MRS and a CCW Rural Residential – includes 2.95ha of vegetation and	207ha formally protected in Phase 1 and 37.2ha in Phase 2 8.8ha of Cottesloe C&S affected by future Urban and Rural Residential	Elevated protection Outcomes will be guided by the proposed criteria as outlined in Action Plan A, B and Action Plan H (for the CCWs).	<ul style="list-style-type: none"> • Support formal protection and management for conservation. • Seek to maximise vegetation retention and protection within residential developments using planning instruments (POS provisions and conditions on Rural Residential subdivisions).

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	CCW currently zoned Rural in MRS			
R21	Phase 2 conservation reserves – BF418 & BF419.	29.8ha formally protected	Elevated protection	Support formal protection and follow recommendations of the Towards Establishing a Green Network report.
R22	Phase 2 conservation reserve – BF369 area Basic Raw Materials, Future Resource: Portion of L25, L474, 475, 478-481. Rural Residential Industrial	49.3ha formally protected in Phase 2 94.7ha of vegetation affected by proposed Rural Residential development – all vegetation mapped as ‘Specific commitments’ (Dardanup veg. complex) 1.6ha of Guildford complex (‘Specific commitments’) is within future Industrial land. REW to be assessed BRM/Future Resource – already cleared land.	Elevated protection Potential mining within the alignment of a regional ecological linkage (Action Plan D) Outcomes for vegetation and connectivity along the regional ecological linkage they form will be guided by criteria outlined in Action Plan B.	<ul style="list-style-type: none"> Support formal protection and follow recommendations of the Towards Establishing a Green Network report. Seek to avoid further fragmentation of vegetation within proposed Rural Residential zoning by development conditions seeking establishment of vegetation protection zones through subdivision design. Seek to adjust the extent of the proposed Rural Residential zoning to remove the proposed zone from the BF369 area, from the vegetated portion of Lot 935 (west of BF369), Lot1101 and Lot212 (east of BF369). Seek to review the inclusion of lots L16, L15, L2, L3 and L9 (south east of BF369) into Rural Residential. These lots contain the largest patch of Dardanup vegetation complex within R22 and within the City of Rockingham, not affected by clearing for fences or roads (27ha including portion on Lot8).
R22			Within lands zoned Industrial, outcomes will be guided by Action Plan A. Conservation status of a REW re-assessed (Action Plan H)	
R23	Urban – northern section west of Mandurah Rd Unaffected – east of	5ha of Karrakatta C&S and 25.1ha of Cottesloe C&S affected by additional proposed	Outcomes will be guided by the proposed criteria as outlined in Action Plan A.	Seek to maximise vegetation retention within future urban subdivisions and follow recommendations of the Towards Establishing a Green Network report.

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
	Mandurah Rd – Urban Unaffected (Rural Residential) – west of Mandurah Rd and south of the existing and new Urban, current zoning Special Rural	urban development	Some remaining vegetation mapped as 'Broad Commitments and Values'	
R26	Unaffected – remains Industrial Includes a chain of CCWs	Chain of CCWs (13.4ha) and 2ha of REW	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H (for the CCWs).	Seek to maximise vegetation retention within future urban subdivisions and protect the chain of CCWs.
R27	Urban (MRS – reserved for Public Purposes – Special Use) Includes a chain of CCWs	105.5ha potentially affected by urban development	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H (for the CCWs).	<ul style="list-style-type: none"> • Seek clarification regarding the planned intent for the land that currently includes a golf course. • Seek to protect the CCWs with adequate buffers. • Seek to retain and where possible (land use mechanisms) protect vegetation to maintain connectivity between the coastal conservation reserves (part of APCA R24) and BF377 (APCA R5).
R28	Urban – about 2/3 of the area (in SWSRPF Urban investigation, currently Rural in MRS) Includes two CCWs and REW Unaffected – eastern portion (Rural Residential) – zoned Special Rural in the LPS.	29.6 ha of Karrakatta C&S in future Urban REW - 12.77 ha CCW - 21.15 ha	Outcomes will be guided by the proposed criteria as outlined in Action Plan A and Action Plan H (for the CCWs).	<ul style="list-style-type: none"> • Seek to maximise vegetation retention within future urban subdivisions and follow recommendations of the Towards Establishing a Green Network report. • Seek to revise the Urban zoning over Lot 44 (large mostly vegetated block)
R29	Urban (Urban deferred)	9.48 ha of	Outcomes will be guided	Seek to maximise vegetation retention within future urban

APCA ID	Perth and Peel Green Growth Plan proposed land use (In brackets - proposed land use in sub-regional planning frameworks)	Vegetated area affected by proposed land use change (only for APCAs with proposed up-zoning and protection)	SAPPR Action plan application	Recommended actions
		Yoongarillup Complex, 0.43 ha Herdsman Complex, 49.55 ha of Bassendean C&S affected by future urban subdivision and roads	by the proposed criteria as outlined in Action Plan A and Action Plan H (for the CCWs).	subdivisions and follow recommendations of the Towards Establishing a Green Network report.
R30	Unaffected (Future Open Space Investigation) Includes CCW and REWs	122.4ha Bassendean vegetation complex, including 45.5ha of CCWs and 78.5ha REWs	Action Plan H, re-assessment of REWs	Support land managers to retain and manage remnant vegetation with particular focus on providing adequate buffers to BF 394 from any future potential development.
R31	Unaffected (Rural)	N/A	Action Plan H (State Government commitments to protect under-represented vegetation complexes – however, due to small size unlikely to be considered)	Follow recommendations of the Towards Establishing a Green Network report.
R32	Unaffected (Rural) Includes CCW	5.5ha of CCW to be protected	Action Plan H, proposed new policy for wetland buffer determination.	Support protection of CCW and its adequate buffer, and follow recommendations of the Towards Establishing a Green Network report.
R33	Unaffected (Rural and Urban – NE corner) Includes CCW	2.9ha of CCW to be protected	Action Plan H, proposed new policy for wetland buffer determination.	Support protection of CCW and its adequate buffer, and follow recommendations of the Towards Establishing a Green Network report.

APPENDIX B: Criteria used to identify Draft Specific and Broad Commitments and Values in the PPGGP mapping

(Source: <https://espatial.planning.wa.gov.au/mapviewer/GreenGrowthPlanTermsOfUse.html>)

Colour in map legends in Appendix D	Environmental value
Draft Specific Commitments - commitments for protecting a specific occurrence of an environmental value, including:	
	<ul style="list-style-type: none"> • Conservation category wetlands
	<ul style="list-style-type: none"> ▪ Threatened flora; ▪ Threatened ecological communities; ▪ Wetlands of international importance; ▪ Vegetation complexes with less than 10% remaining* (in the SW Group area these include Dardanup, Guildford, Serpentine River vegetation complex); ▪ Bush forever areas within the three classes of action mapped (excluding those within the 'rural complementary' and 'negotiated planning solution' categories); and ▪ Short-tongued Bee (<i>Leioproctus douglasiellus</i>) distribution.
Draft Broad Commitments and Values - seeking an overall conservation outcome, or where further work is needed to determine where intervention is required to reach an outcome, including:	
Not mapped, generally correspond with remnant vegetation and buffers within area affected by proposed classes of action	<ul style="list-style-type: none"> ▪ Threatened fauna habitat (including Carnaby's Cockatoo habitat, Chuditch and Ring Tail Possum sites); ▪ Vegetation complexes with more than 10% but less than 30% remaining (in the SW Group area these include: Bassendean Central and South, Karrakatta Central and South, Southern River complex); ▪ 'Negotiated planning solution' and 'rural complementary' bush forever areas within the three classes of action mapped; ▪ Peel regionally significant natural areas; ▪ Resource enhancement wetlands with remnant vegetation, including a 50 metre buffer; and ▪ 50 meter buffers for conservation category wetlands.
	<ul style="list-style-type: none"> • Resource enhancement wetlands

*Remaining in the Perth and Peel regions

APPENDIX C: Statistical analysis

Table 1: Changes in vegetation protection levels and effects of levels of vegetation extent within land uses with limited opportunities on vegetation retention/protection

Note: vegetation extent within existing and proposed reserves is based on re-traced boundaries of PPGGP mapping.

Local Government	% of pre-European extent of native vegetation remaining (2013)	Vegetation within reserves with existing protection (ha)	Proposed increase in vegetation protection (ha) – after Phase 1 implementation	Vegetation within areas mapped as Phase 2 Conservation – 10%	% of pre-European extent protected with proposed additions (Phase 1 and 90% of vegetation in Phase 2)	Total native vegetation in Bush Forever (2014) (vegetated areas in Bush Forever not included in the PPGGP Conservation Reserve Plan)	Area of vegetation within portions of APCAs with proposed land use changes, providing limited opportunities for vegetation retention or protection (not including Infrastructure)
City of Fremantle	2%	0	0	12.68#	0.8%	13 (0)	N/A
Town of East Fremantle	0.8%	0	0	0	0	0	N/A
City of Melville	6.3%	6.3	0	213.7#	4.3%	181 (0)	N/A
City of Cockburn	28%	905	435.5	653.9	13.5%	2476 (95.6)	250.45
City of Kwinana	38.3%	451	546.3	918.6	16%	2018 (94)	282.3
City of Rockingham	30%	769	2485.3	887	17%	4125 (7.7)	590.13

*It is anticipated that areas identified as Phase 2 Conservation Reserves will be negotiated and in some instances not all areas will be formally protected. The planned 90,000ha to be protected during Phase 2 are to be selected from over 160,000ha identified in the mapping, so only about 56% of the identified areas will be protected. The 160,000ha include cleared areas while the analysis above shows only portions with native vegetation within the identified proposed conservation reserves. Therefore, it is assumed that at least 90% of the vegetation within lands mapped as Phase 2 Conservation will be formally protected.

The 10% reduction was not applied.

Table 2: Native vegetation extent by vegetation complexes within portions of APCAs with proposed new Urban, Industrial and Rural Residential development (an estimate).

APCA	Native vegetation affected by proposed up-zoning within APCAs (ha)	Vegetation complexes affected by the proposed up-zoning within APCAs (ha)								
		Quindalup	Cottesloe C&S	Karrakatta C&S	Bassendean C&S	Dardanup	Serpentine River	Guildford	Yoongarillup	Herdsmen
C3	6.5		6.45							
C5&C13	13		13							
C9	26.65		26.65							
C15	12.8				12.8					
C16	57.5		35.8	18.8						2.89
C17, C18, C19	9		9							
C20 & C21	19				19					
C28, C29, C32	83				83					
C34	23		23							
Total City of Cockburn	250.45	0	113.9	18.8	114.8	0	0		0	2.89
K5	7.4			6.4	1					
K8	29.5			29.5						
K9	25.8			25.8						
K12	39.3		36	3.3						
K13	53		53							
K15	27.4	27.5								
K17	3									3
K22	42.6		14.91	27.73						
K26	29.3				29.3					

		Vegetation complexes affected by the proposed up-zoning within APCAs (ha)								
APCA	Native vegetation affected by proposed up-zoning within APCAs (ha)	Quindalup	Cottesloe C&S	Karrakatta C&S	Bassendean C&S	Dardanup	Serpentine River	Guildford	Yoongarillup	Herdsmen
K27	14				14					
K36	11				11					
Total City of Kwinana	282.3	27.5	103.91	92.73	55.3	0	0		0	3
R24	29.2	29.2								
R5	38.71	29.32	9.39							
R6	90		17.7	35.6						36.8
R7	11			11						
R10	15	2.4	8.1							3.2
R13	51.4			49.73			1.57			0.12
R16	17.9			17.9						
R19	8.7		6.27	2.5						
R20	8.8		8.8							
R22	94.7					93.1		1.6		
R23	30.1		25.1	5						
R27	105.5	105.5								
R28	29.6			29.6						
R29	59.5				49.55				9.48	0.43
Total City of Rockingham	590.13	166.42	75.36	151.33	49.55	93.1	1.57	1.6	9.48	40.55
South West Group Total	1122.88	193.92	293.17	262.86	219.65	93.11	1.57	1.6	9.48	46.44

APPENDIX D: Figures – Perth and Peel Green Growth Plan mapping compared with Areas of Priority Conservation Action and ecological linkages identified in the Towards Establishing a Green Network (Local Biodiversity Program 2014).

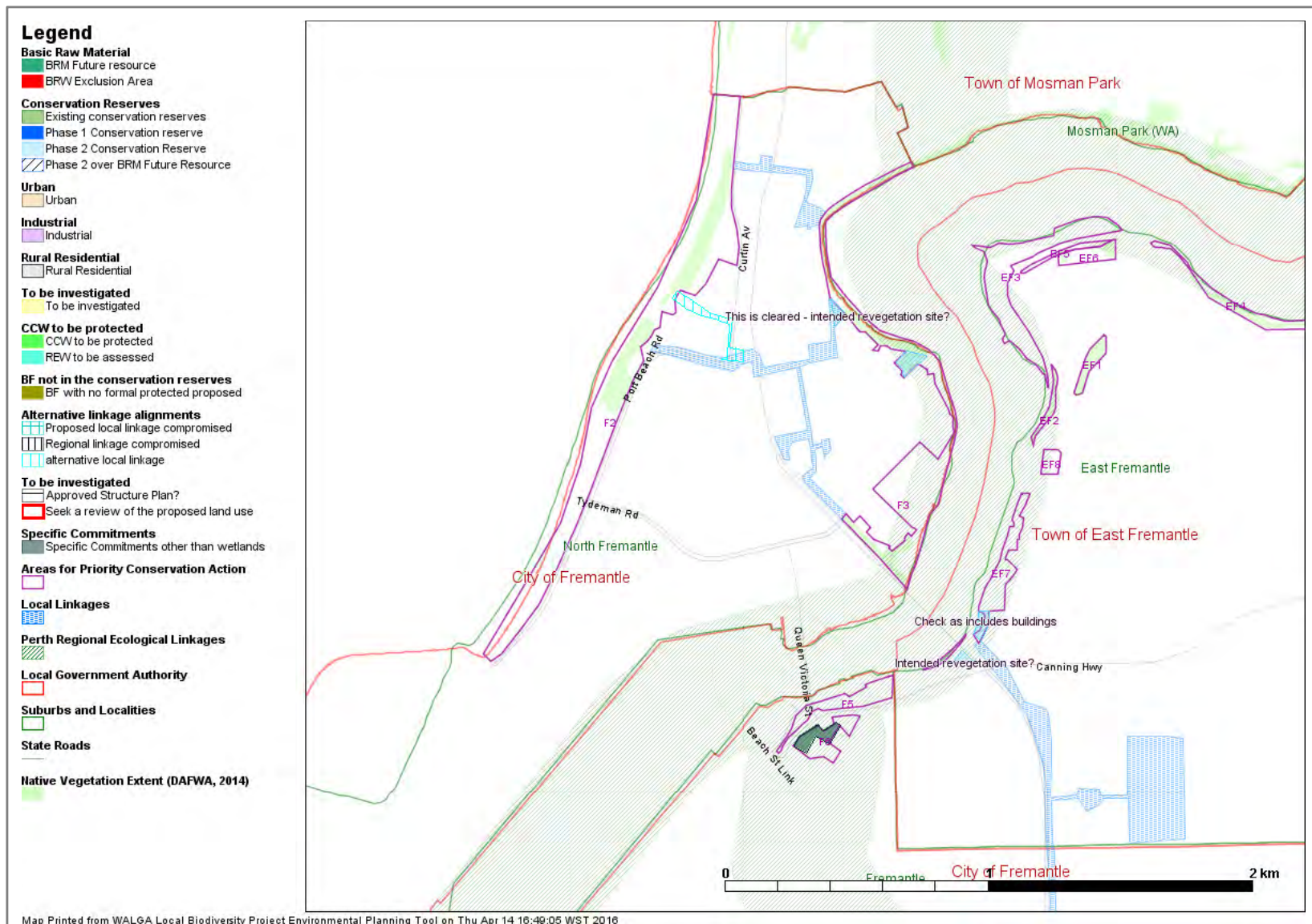


Figure 1: City of Fremantle and Town of East Fremantle - West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

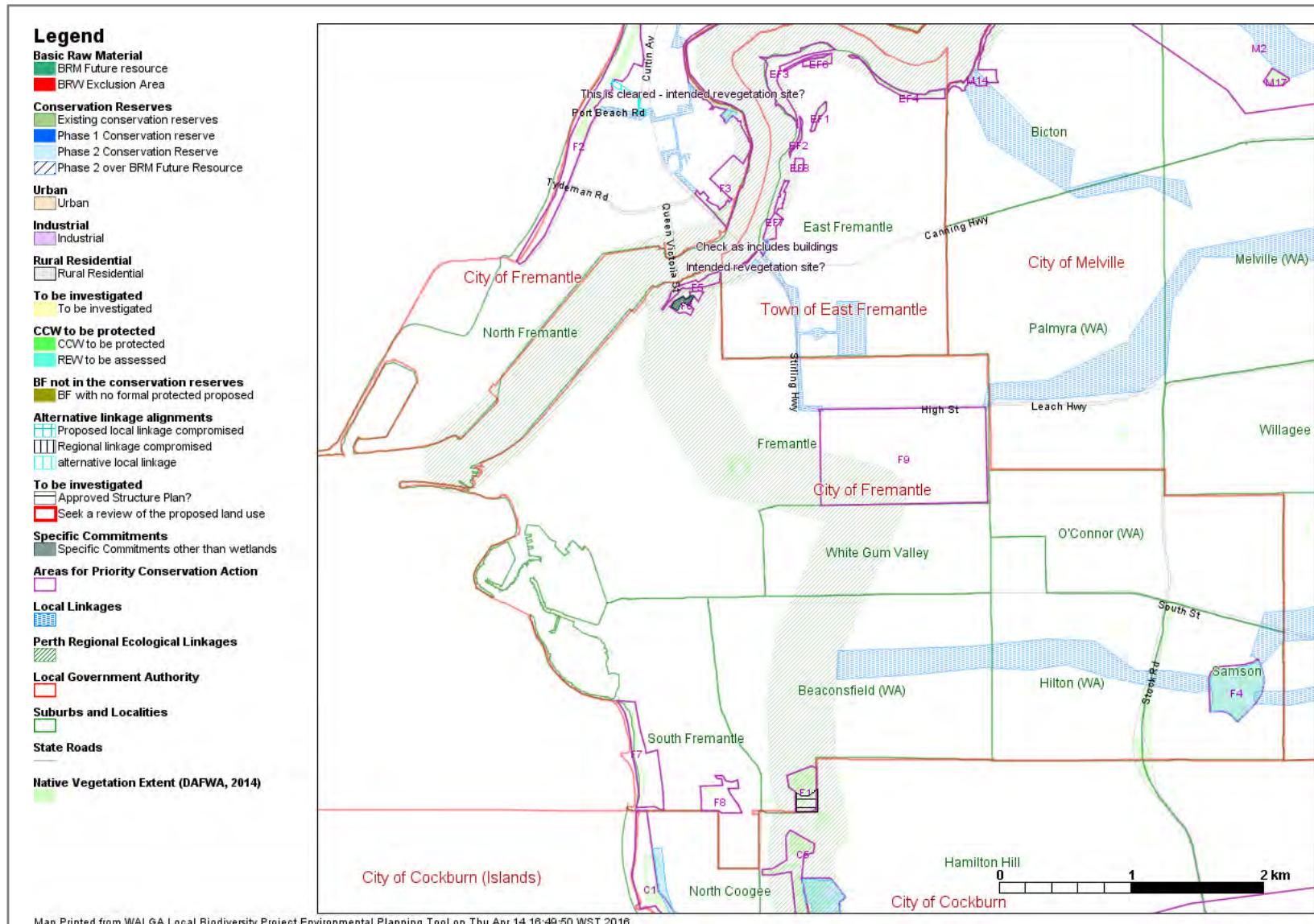


Figure 2: City of Fremantle and Town of East Fremantle - Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

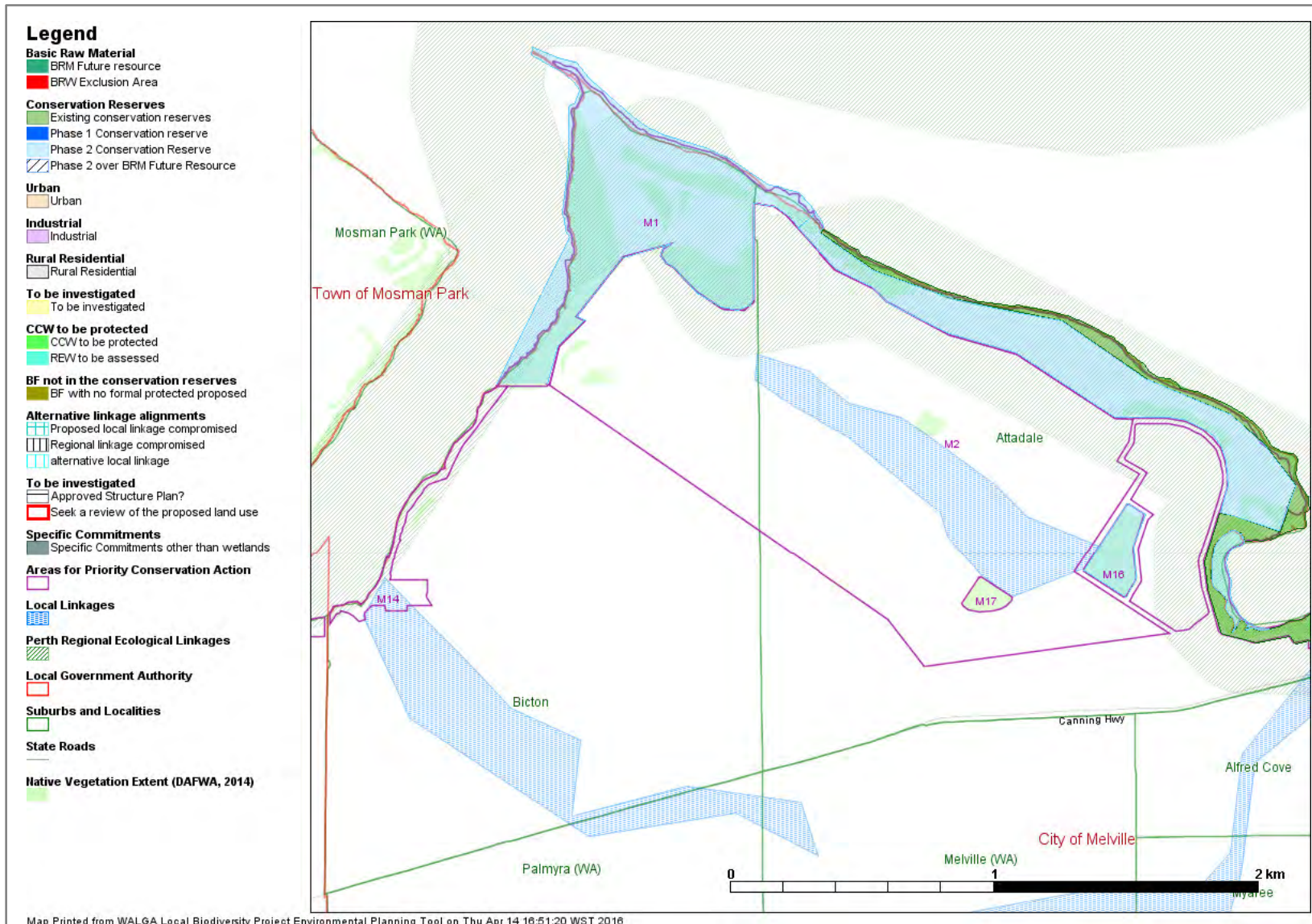


Figure 3: City of Melville - North-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

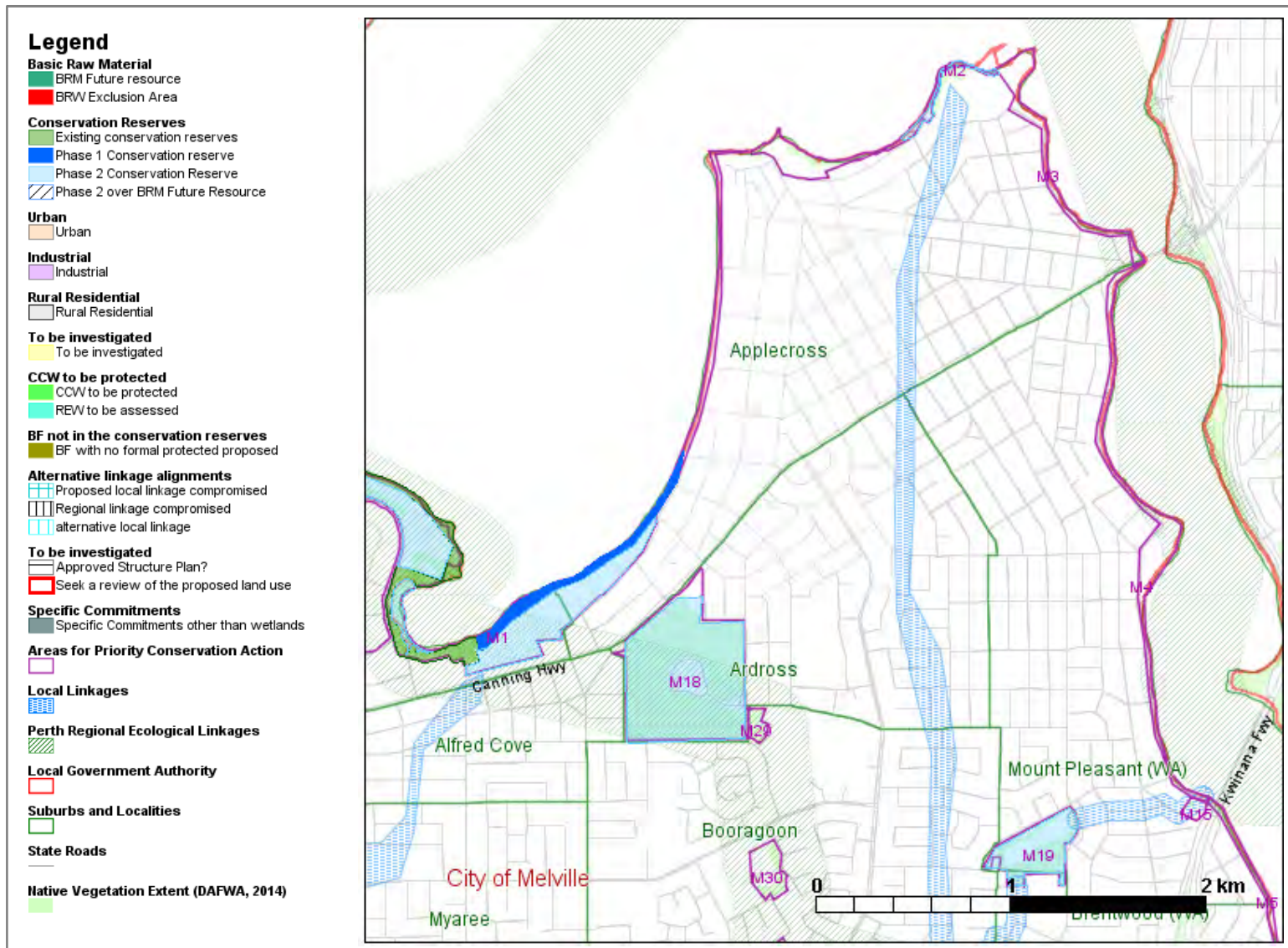


Figure 4: City of Melville - North-East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

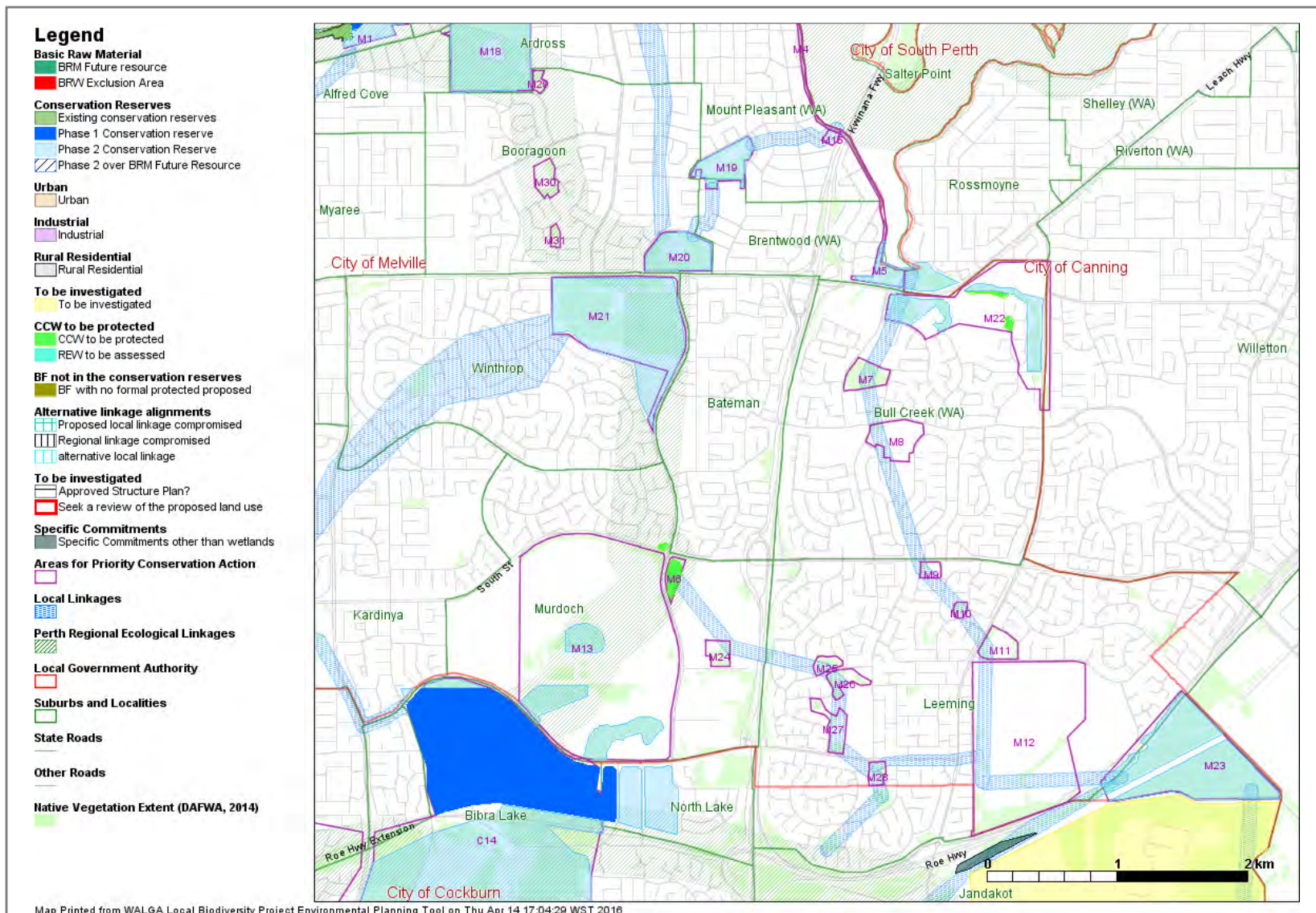


Figure 5: City of Melville - South-East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

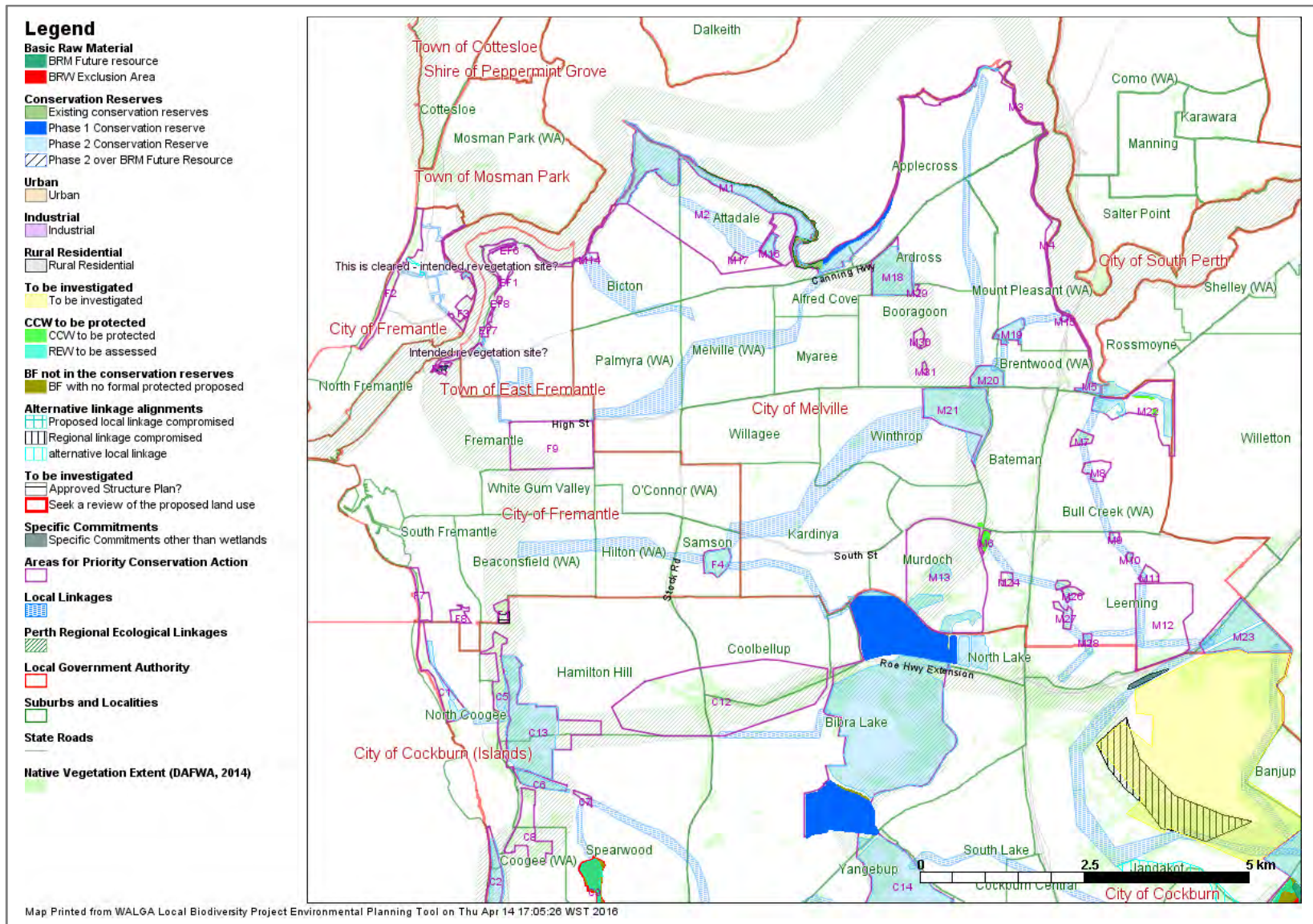


Figure 6: City of Melville, City of Fremantle, Town of East Fremantle - Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

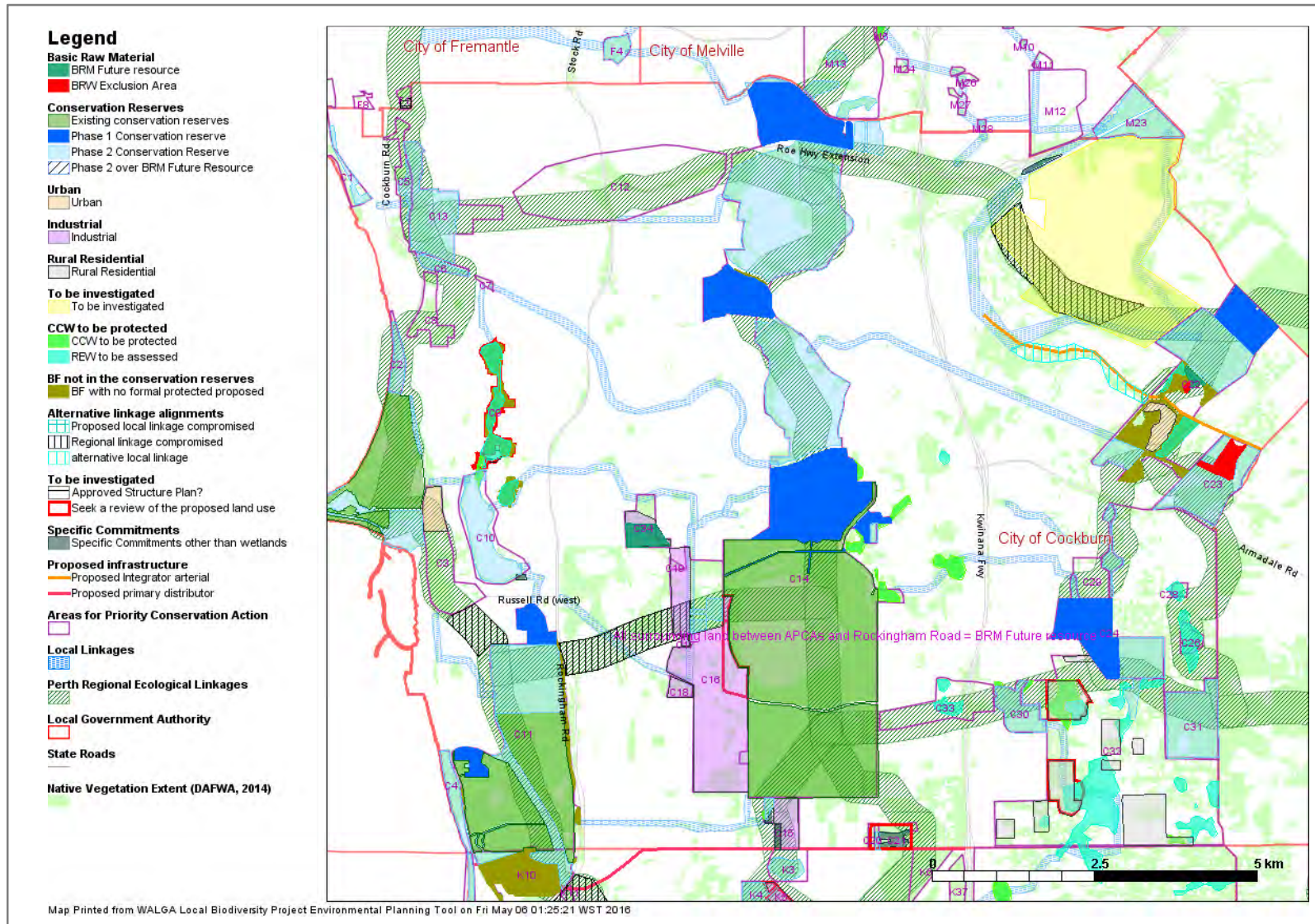


Figure 7: City of Cockburn - Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.



Figure 8: City of Cockburn - North-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

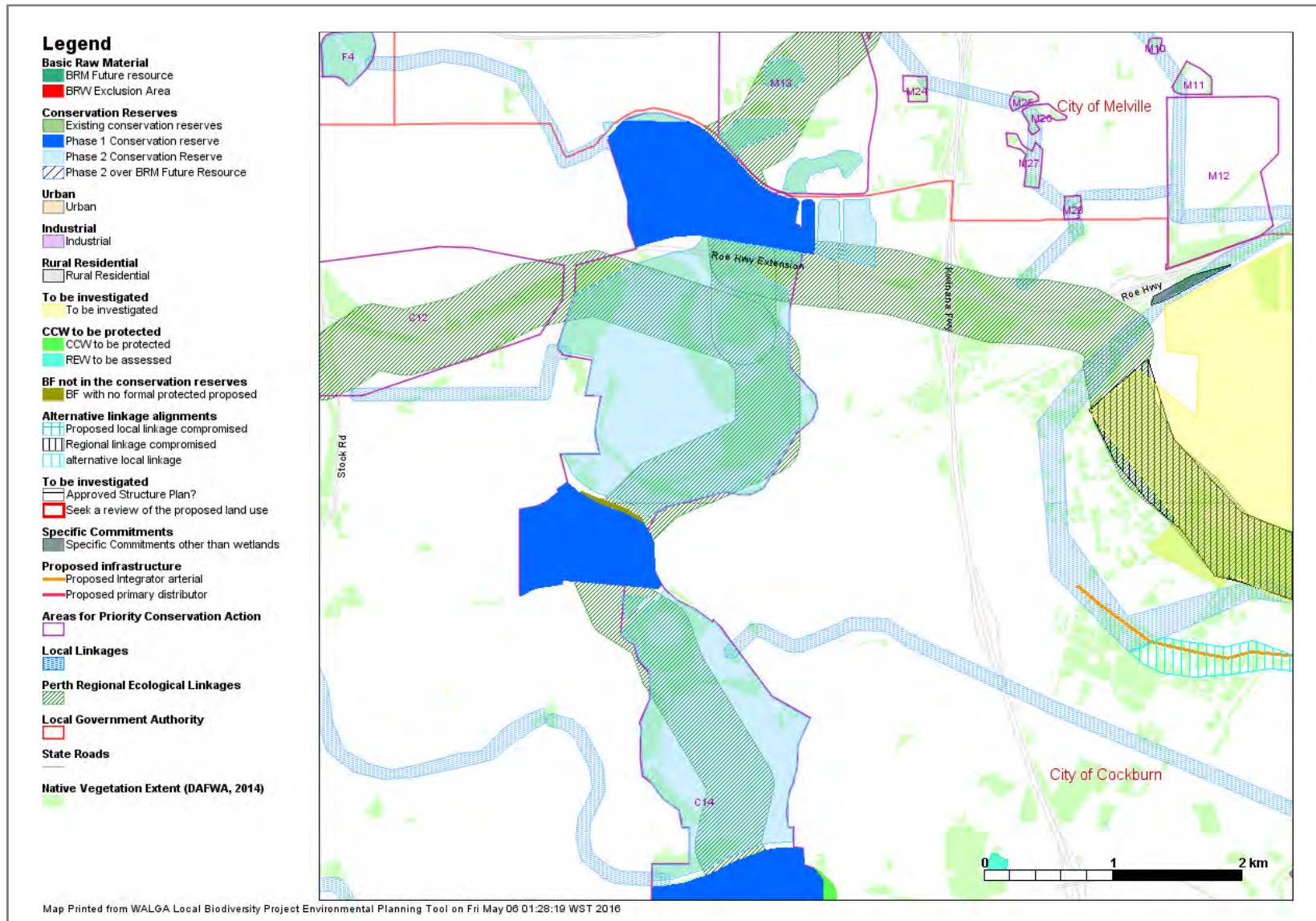


Figure 9: City of Cockburn - Central Parts. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

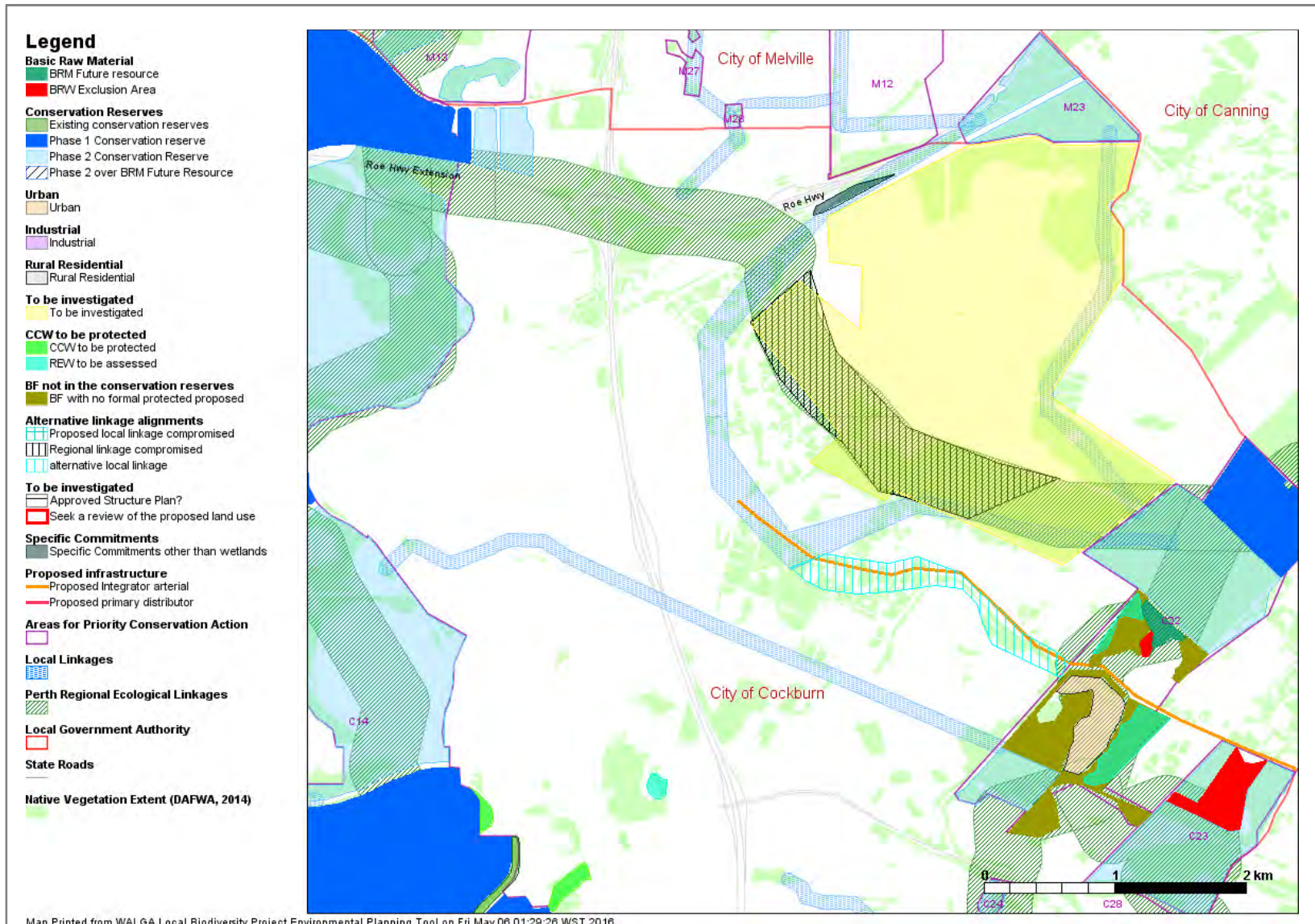


Figure 10: City of Cockburn - North-East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

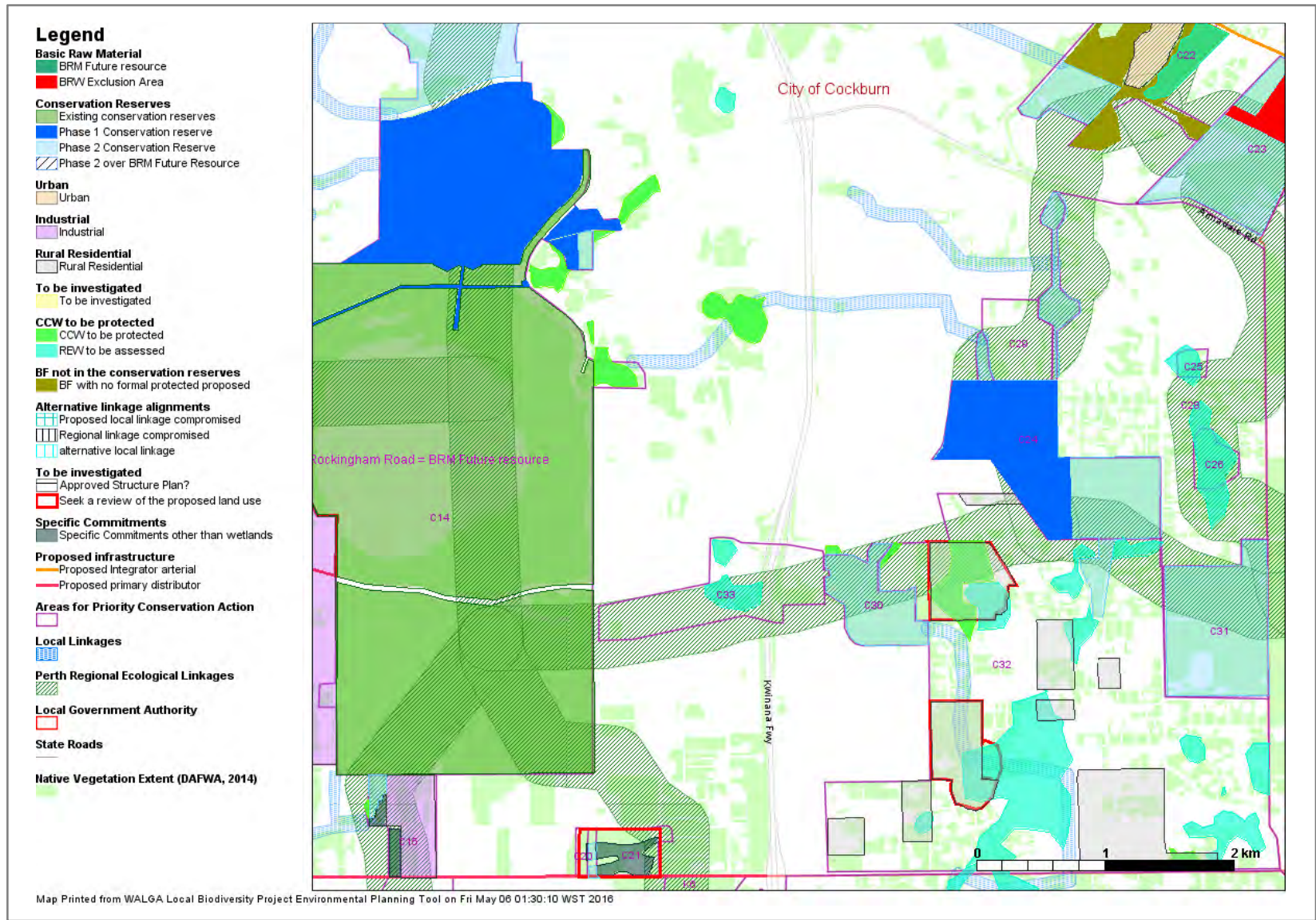


Figure 11: City of Cockburn – East and South East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

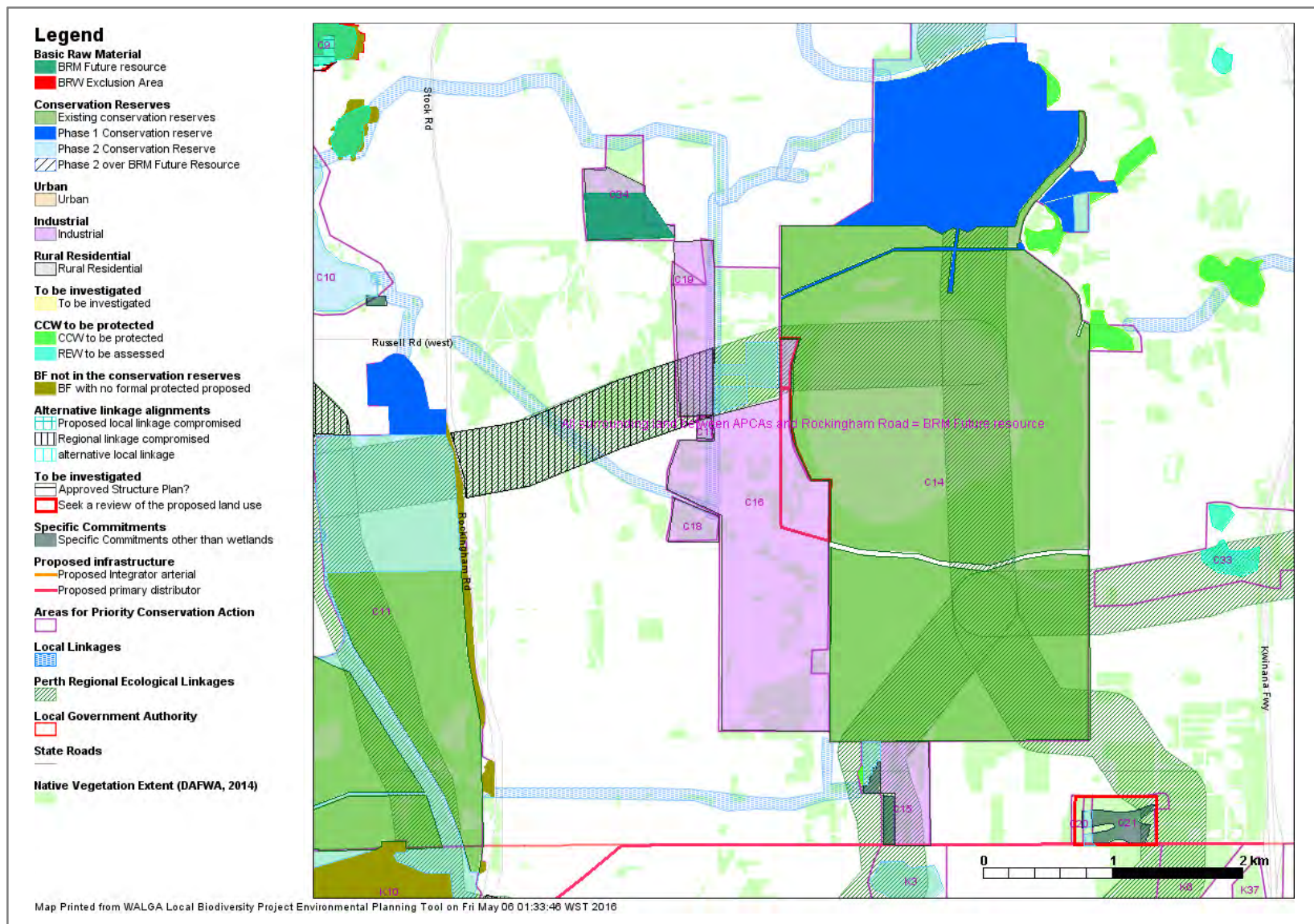


Figure 12: City of Cockburn - South Central. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

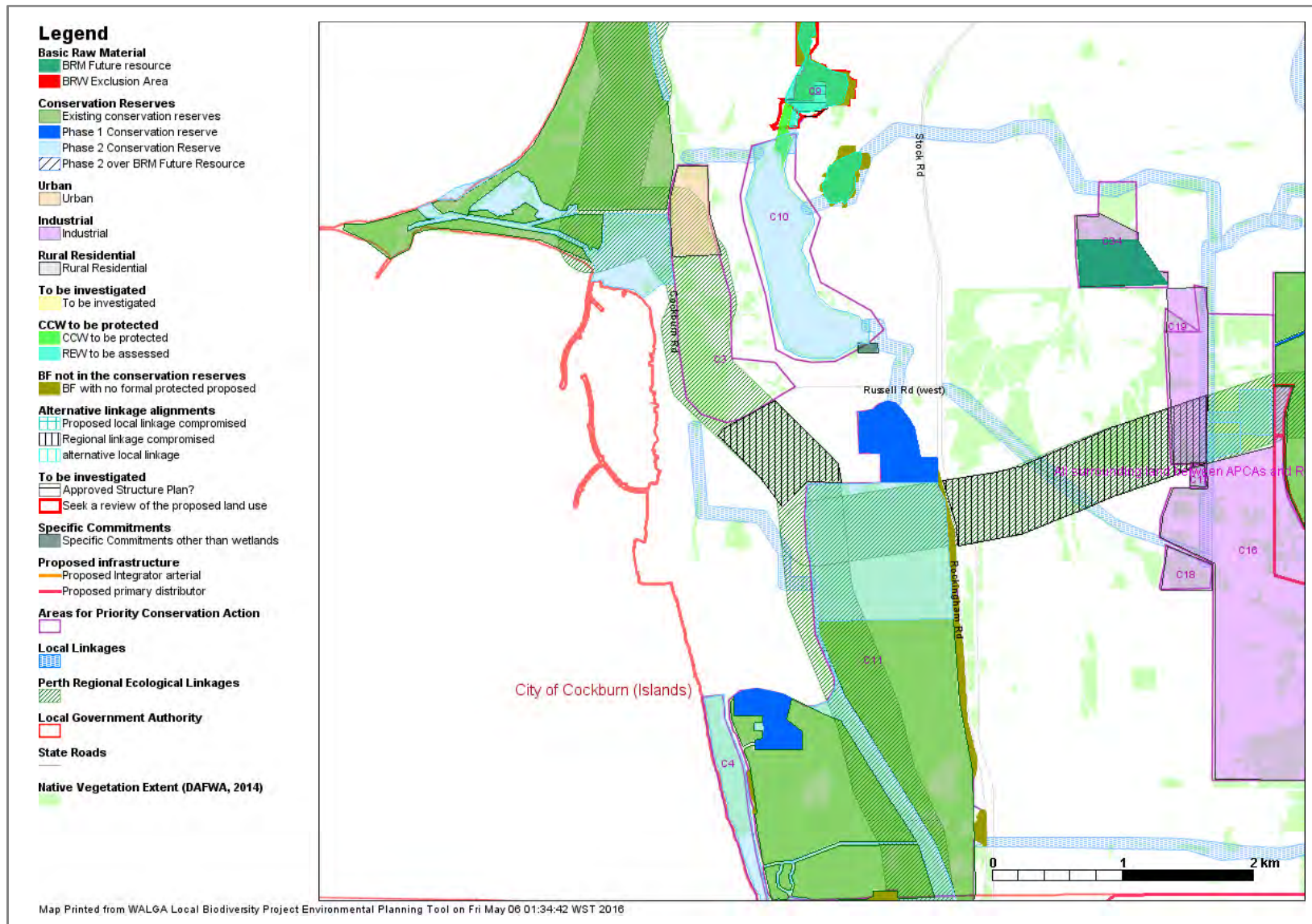


Figure 13: City of Cockburn - South-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

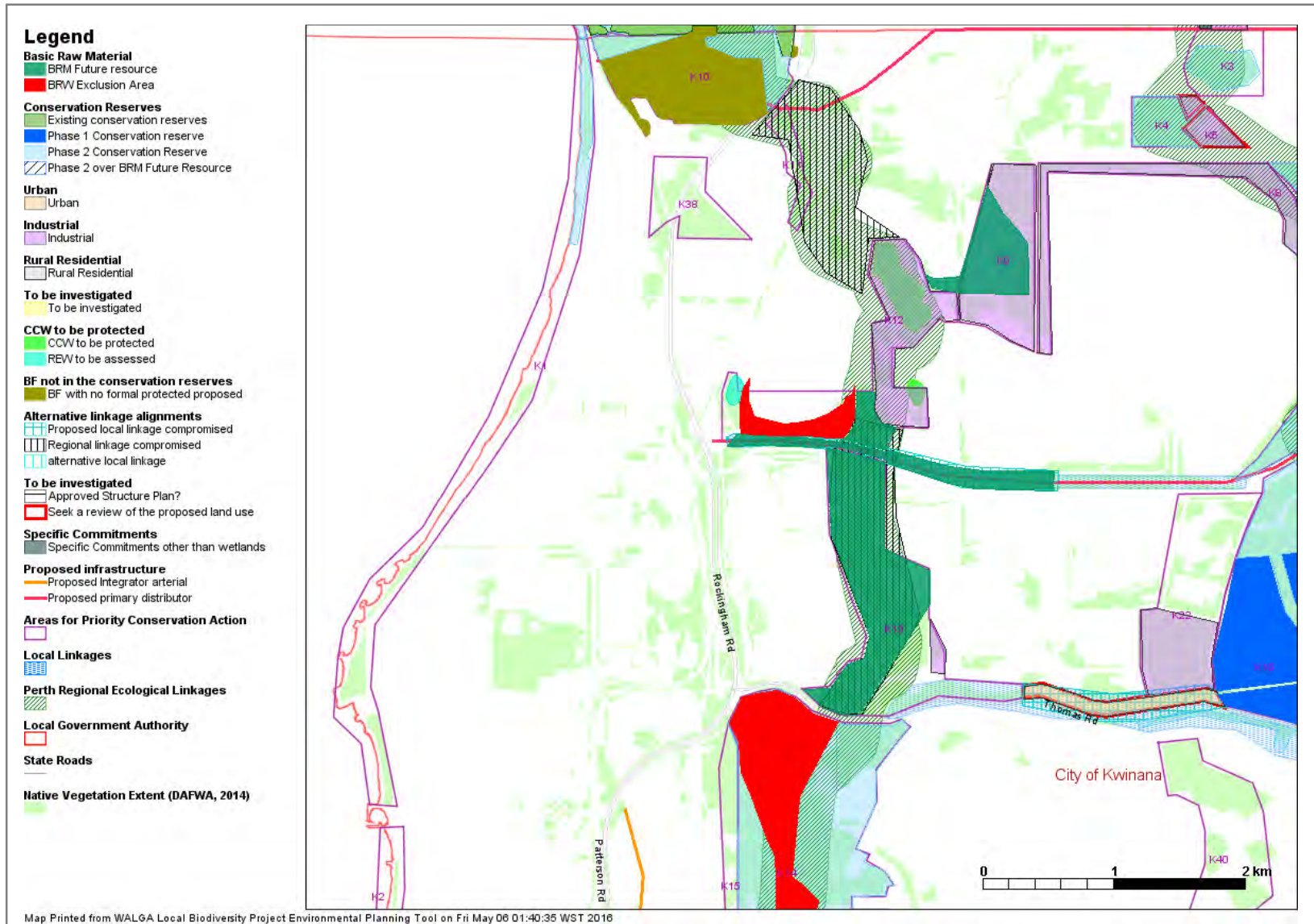


Figure 14: City of Kwinana - North-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

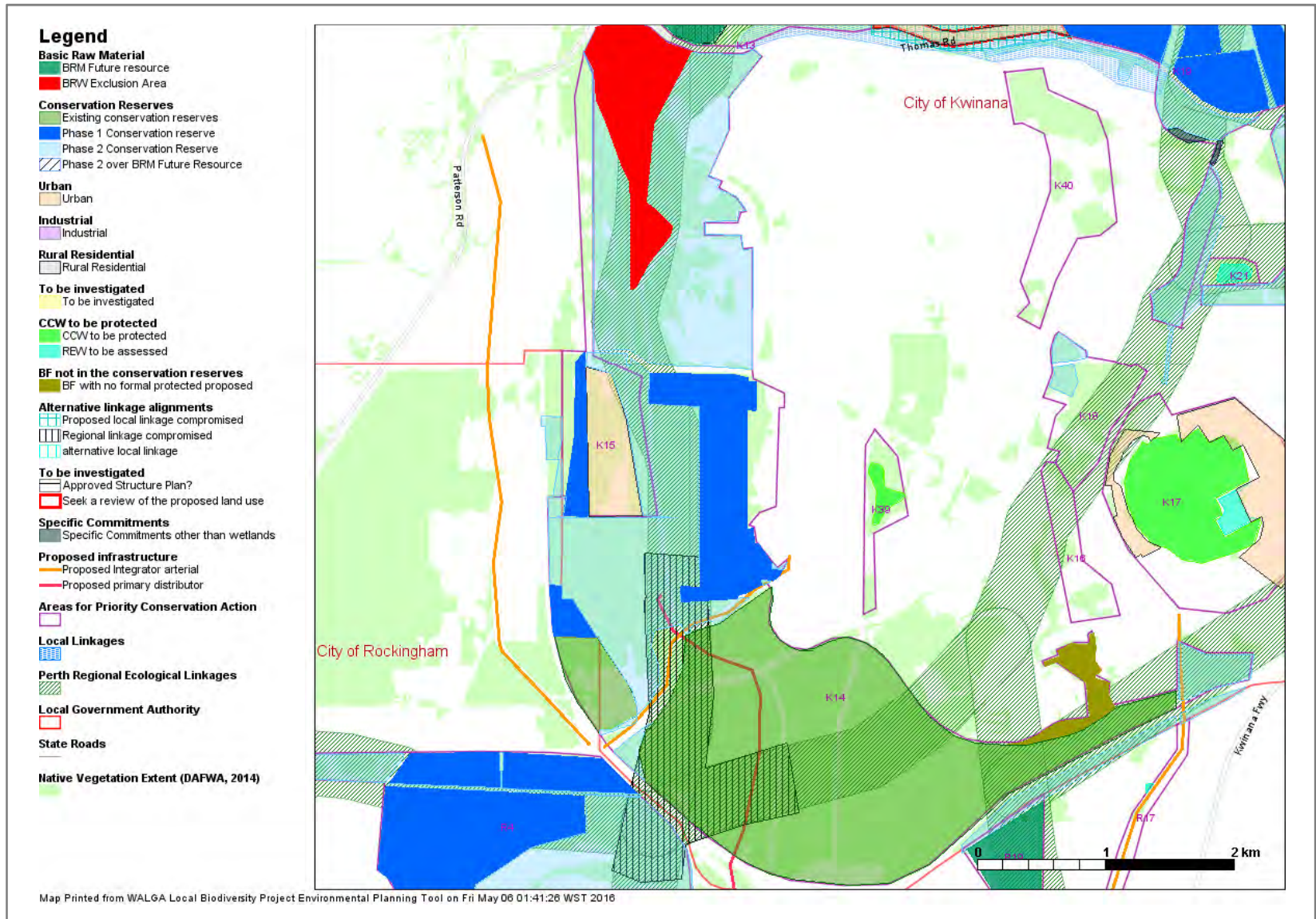


Figure 15: City of Kwinana - South-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

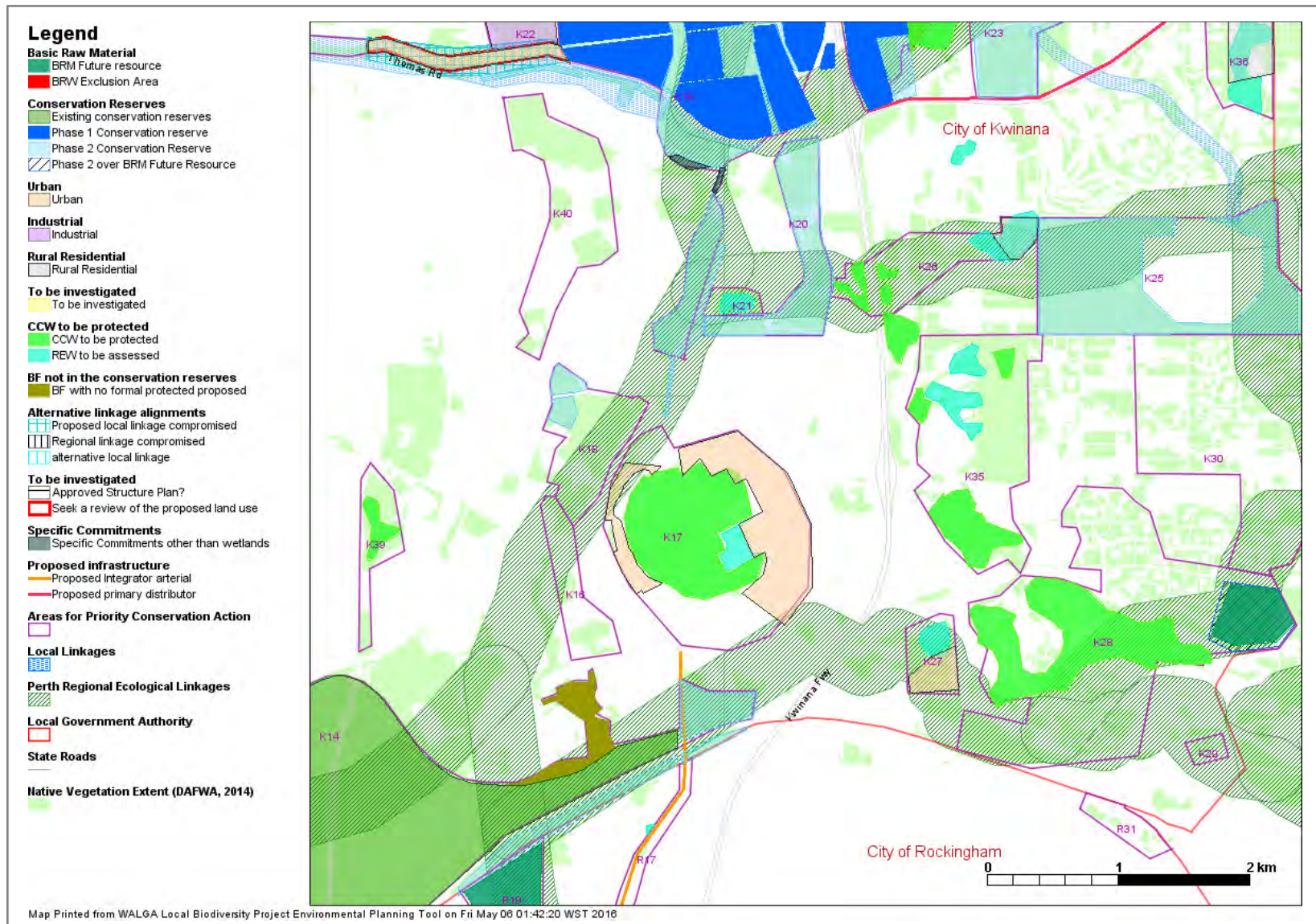


Figure 16: City of Kwinana - South-East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

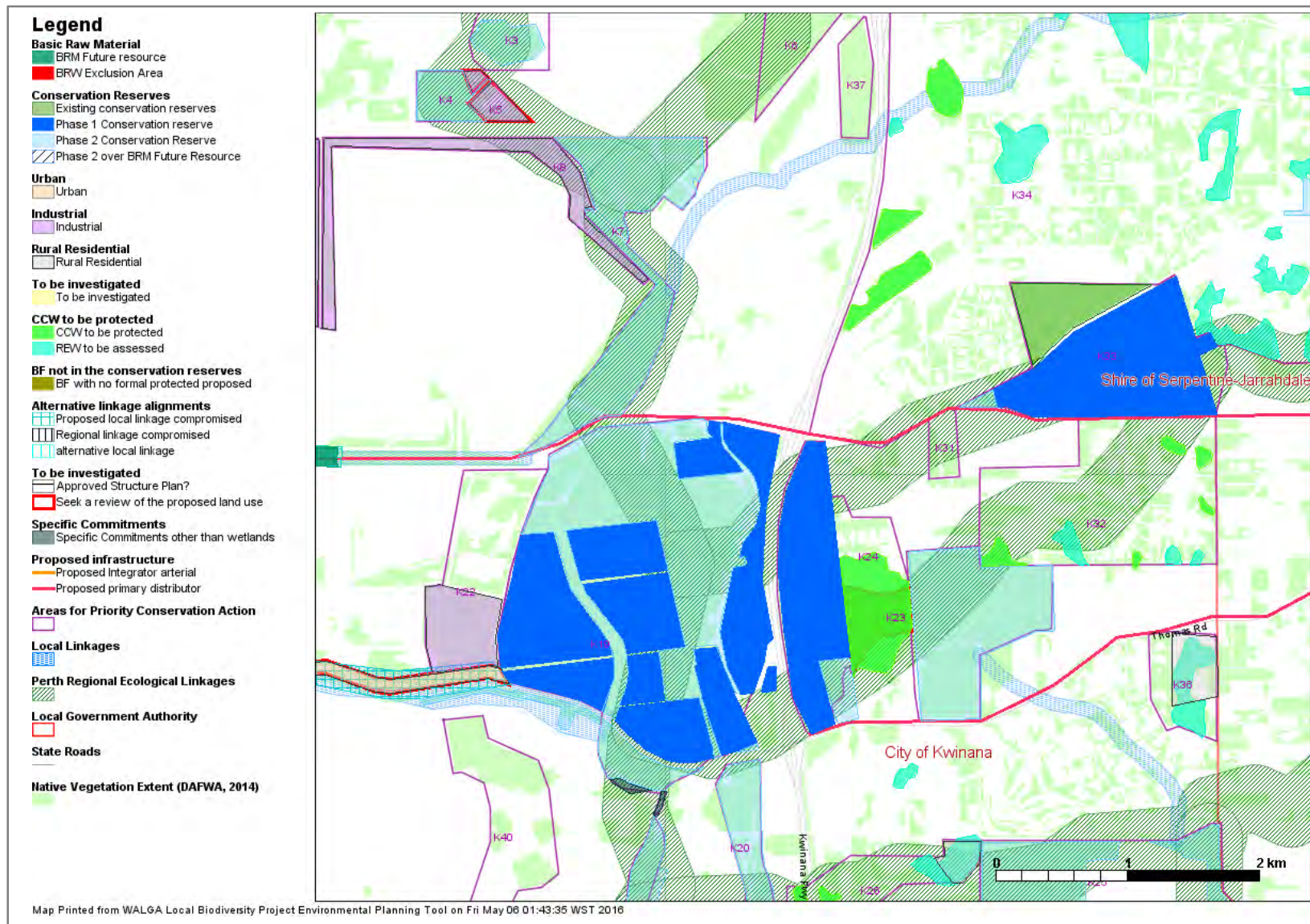


Figure 17: City of Kwinana - North-East. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

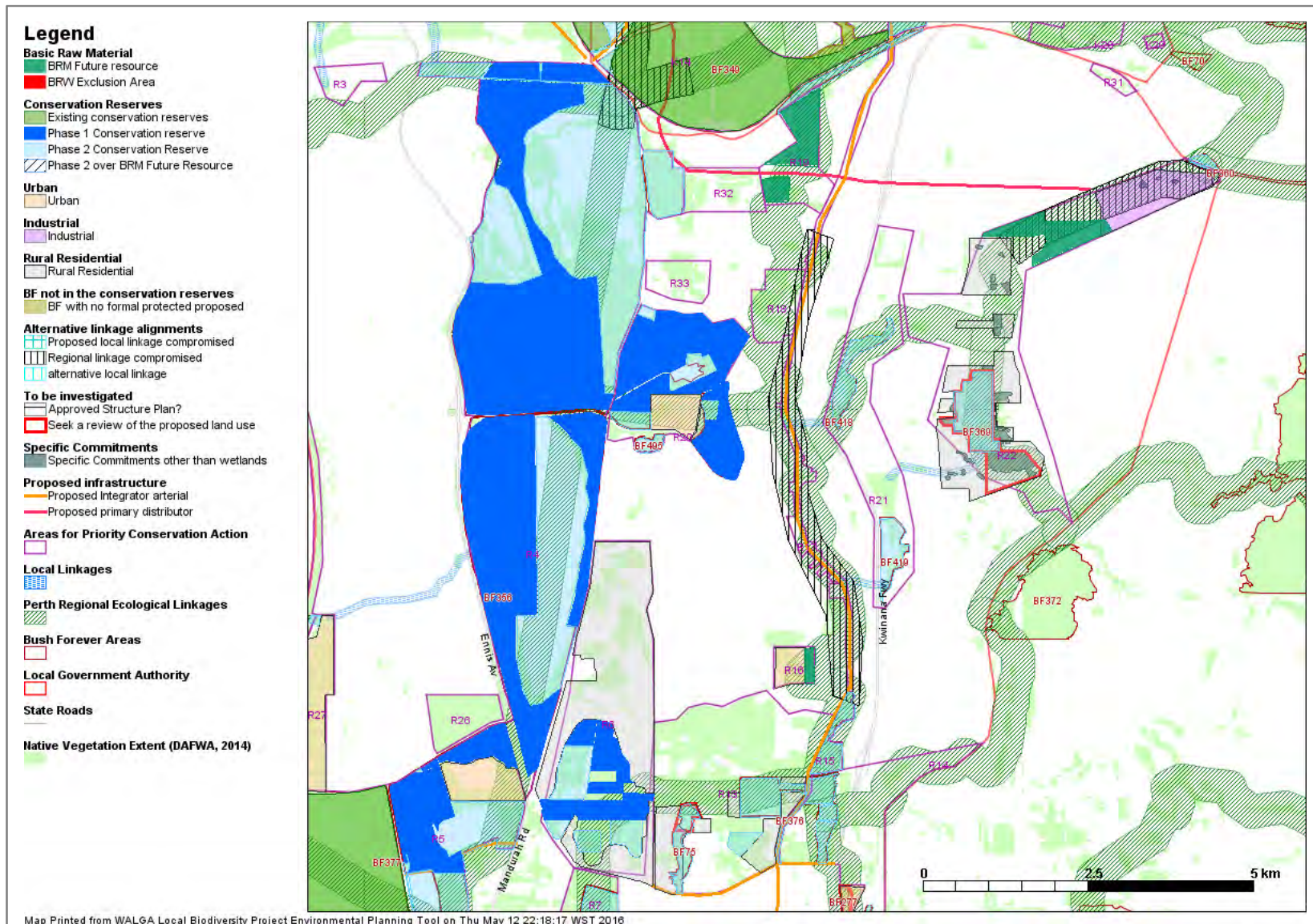


Figure 18: City of Rockingham - North-West. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.

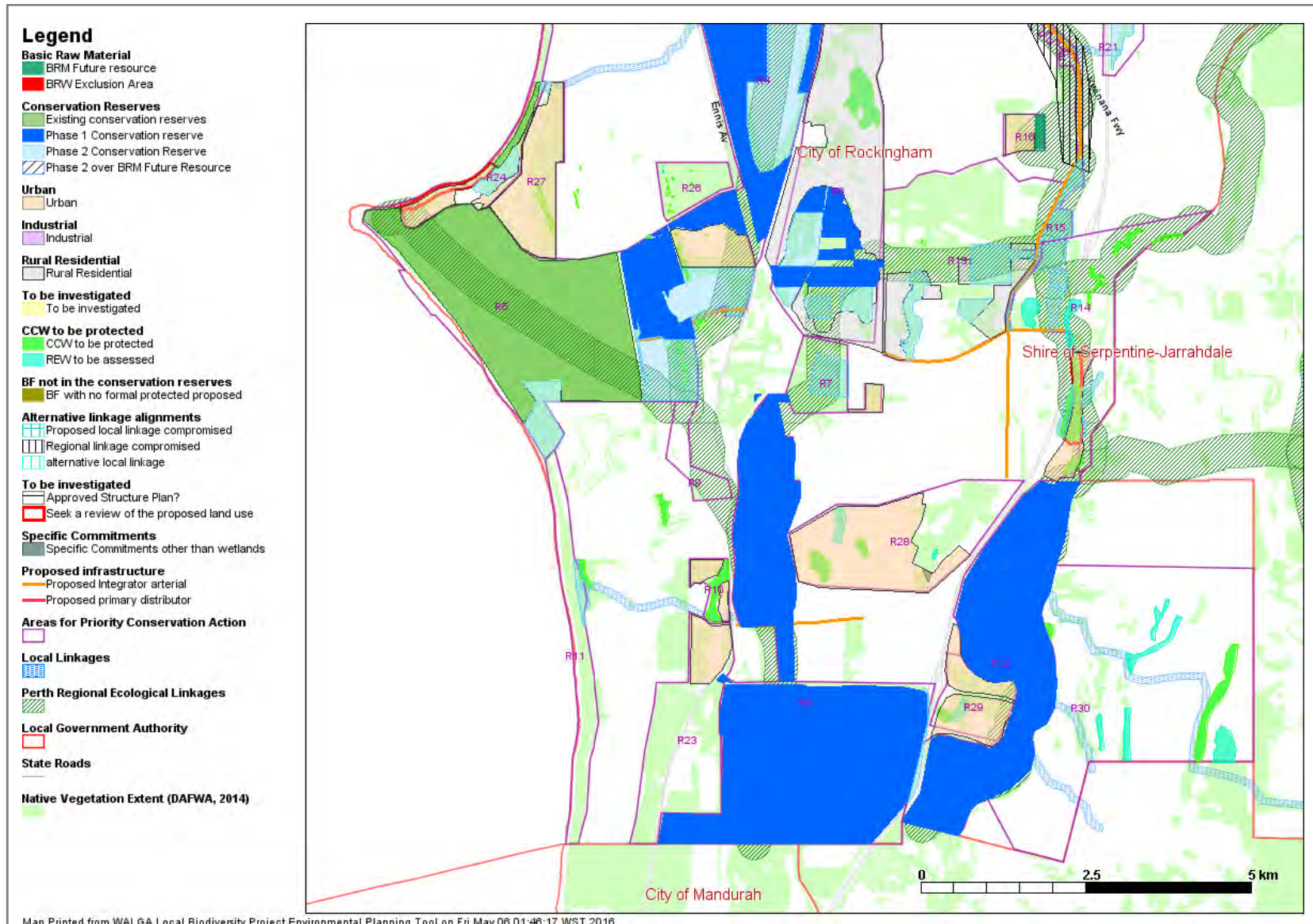


Figure 19: City of Rockingham - South. Overlay of selected Perth and Peel Green Growth Plan mapping over Areas of Priority Conservation Action and ecological linkages.